Issue 91

PS

1960 Series

THE PREVENTIVE MAINTENANCE MONTHLY

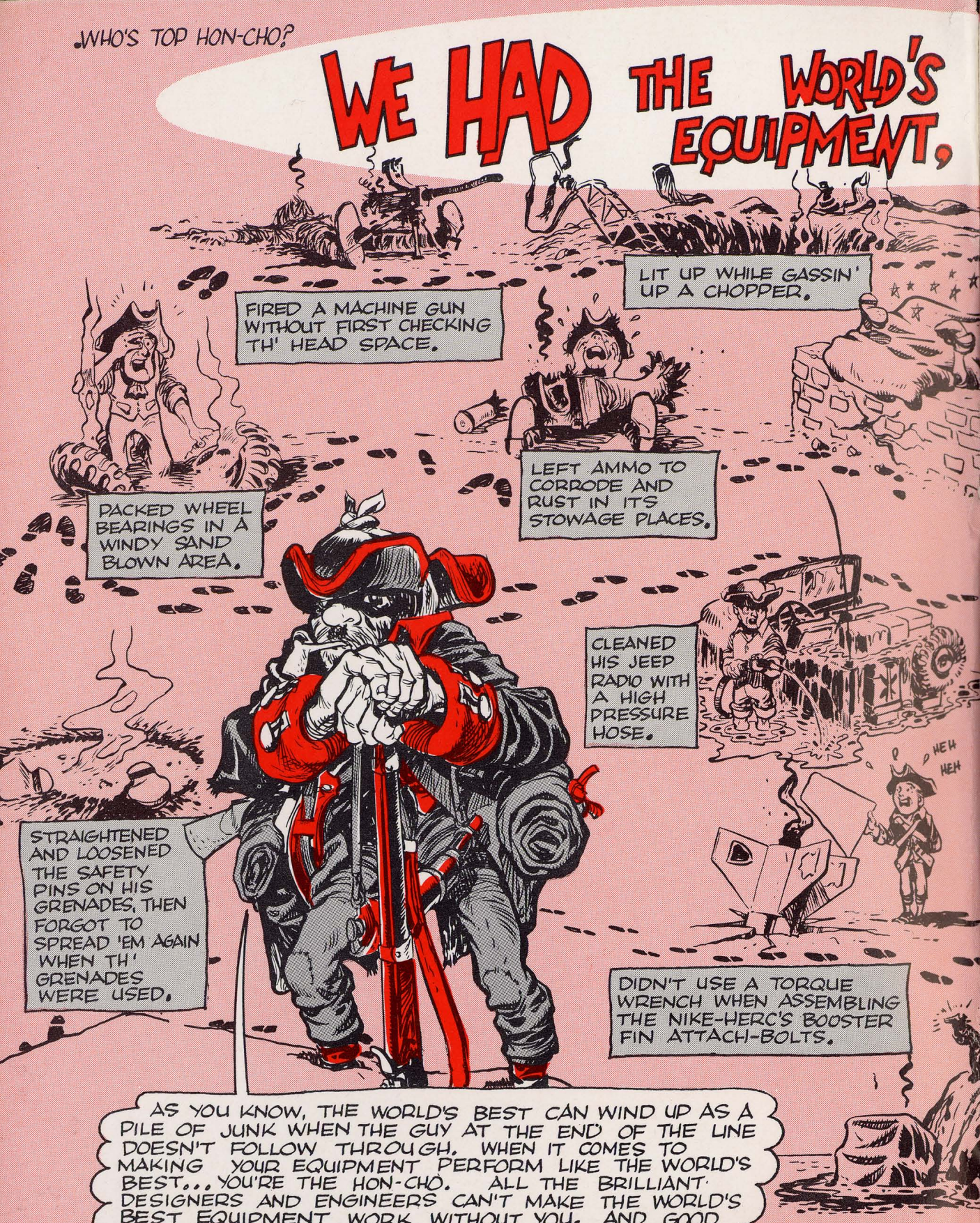
SPECIAL FEATURE

CANVAS MAINTENANCE

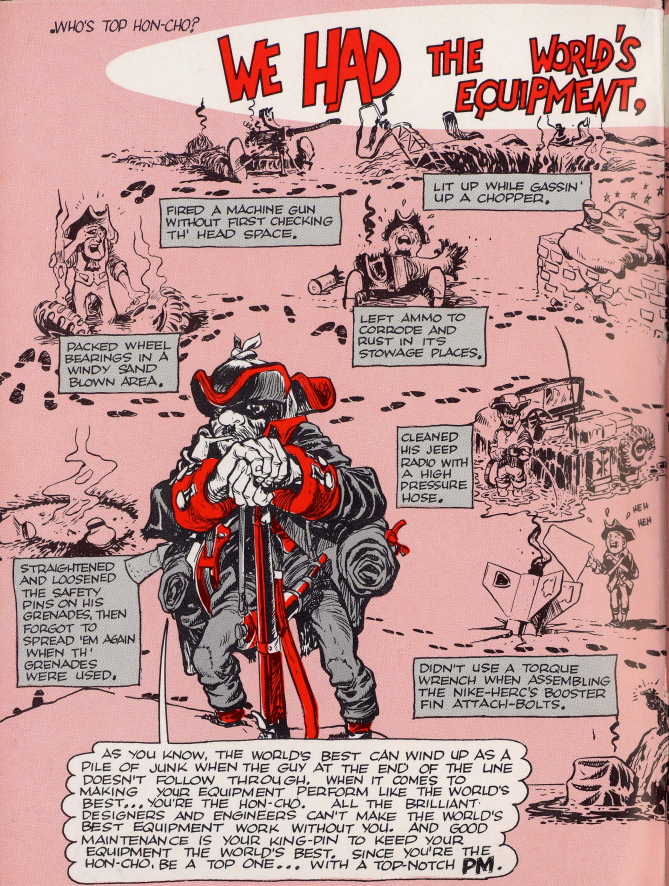
SEE PAGE 2

.WHO'S TOP HON-CHO?

WE HAD THE WORLD'S EQUIPMENT,



AS YOU KNOW, THE WORLD'S BEST CAN WIND UP AS A PILE OF JUNK WHEN THE GUY AT THE END OF THE LINE DOESN'T FOLLOW THROUGH. WHEN IT COMES TO MAKING YOUR EQUIPMENT PERFORM LIKE THE WORLD'S BEST... YOU'RE THE HON-CHO. ALL THE BRILLIANT DESIGNERS AND ENGINEERS CAN'T MAKE THE WORLD'S BEST EQUIPMENT WORK WITHOUT YOU. AND GOOD MAINTENANCE IS YOUR KING-PIN TO KEEP YOUR EQUIPMENT THE WORLD'S BEST. SINCE YOU'RE THE HON-CHO, BE A TOP ONE... WITH A TOP-NOTCH **PM**.



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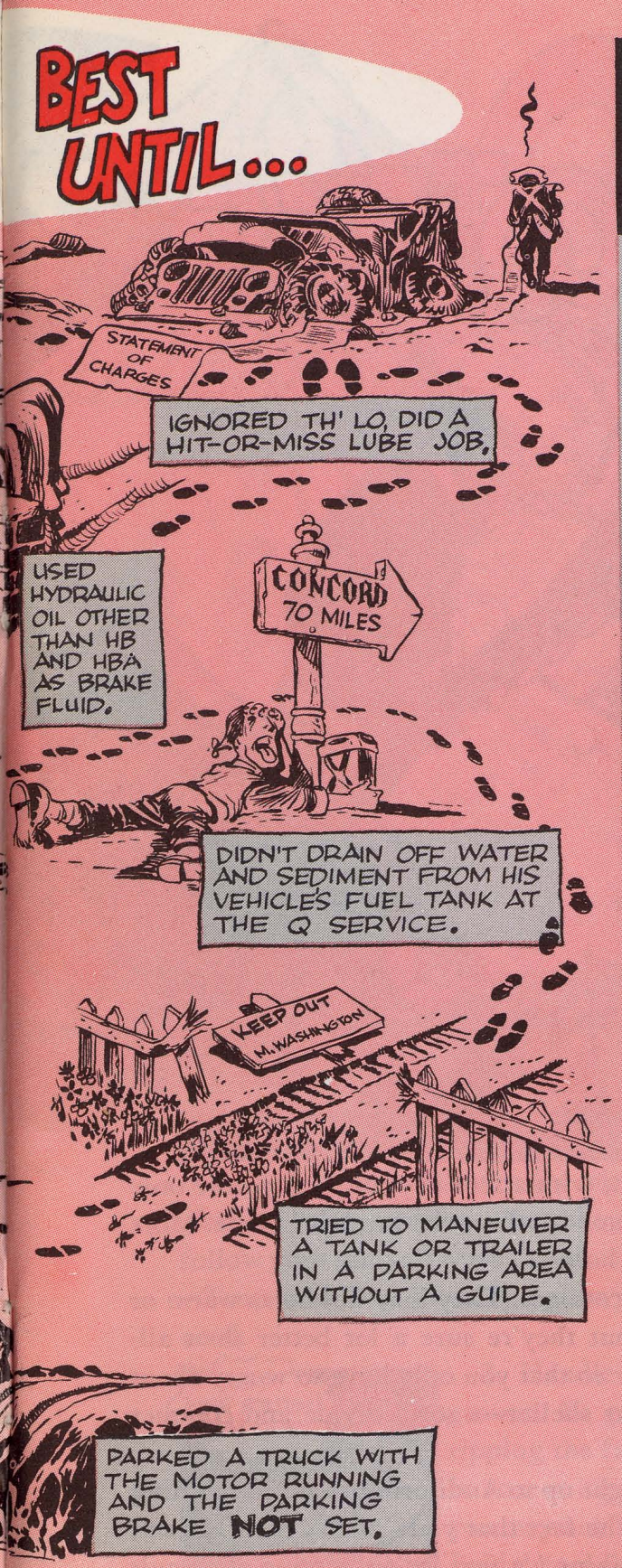

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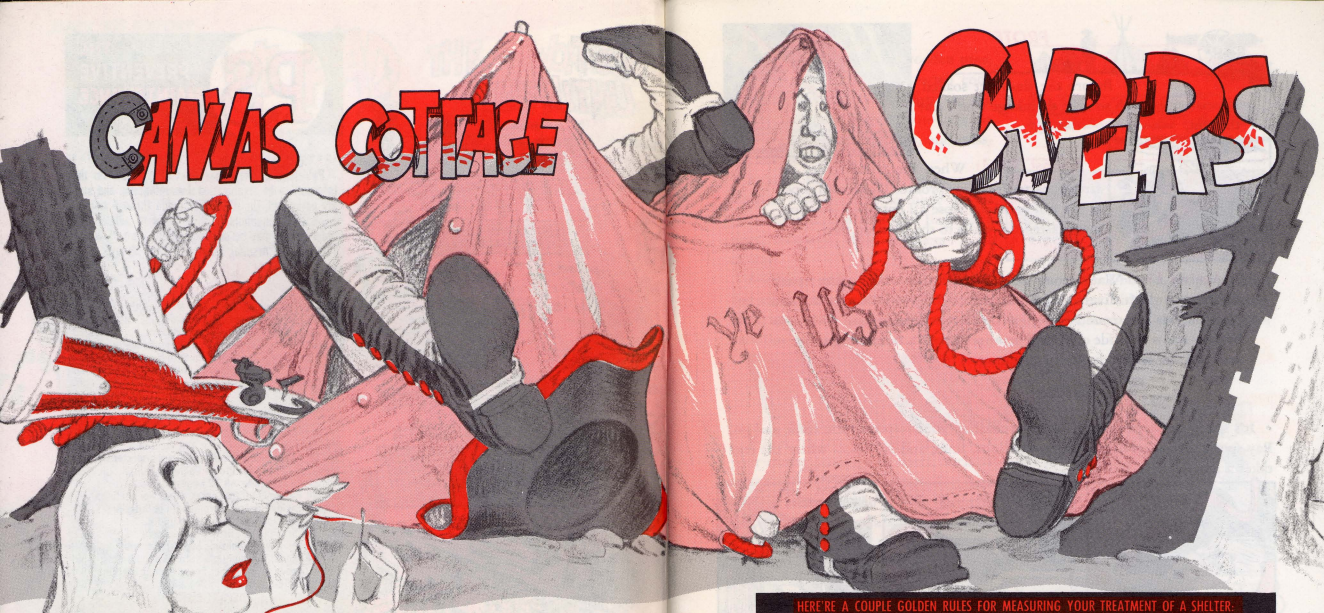
No matter how fast or far you may roam, with a tent in your pack you're only minutes from home. Not so much the "home-is-where-the-heart-is" home. More like the "you-found-a-home-in-the-Army" home.

There's a lot to be said for these canvas cottages. They may not be as warm or as dry or as cool as you like 'em to be, but they're sure a lot better than all-out-doors. They sorta break up the weather so that you only have to worry about that part of it which tries to get into your shelter—a sorta divide and conquer tactic.

All types of tents—from shelter halves right up to Auditoriums—give according to how they receive—protection, that is. The fact that you "pitch" them doesn't mean you can toss 'em around. And "striking" a tent isn't the same as assault and battery.



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HERE'RE A COUPLE GOLDEN RULES FOR MEASURING YOUR TREATMENT OF A SHELTER:

1. Accept no substitutes for tried and true methods of pitching and striking. For the best batting-average, follow your pubs all ways . . . always. FM 20-15 (Jan 56) —Tents and Tent Pitching—gives you all the dope you'll need.

2. Handle with care. Avoid dragging tents on the ground. Be gentle with the poles and pins to keep from ripping the fabric. If your tent is equipped with zippers, be sure to zip it up before pegging the shelter down. Else you may not be able to zip it up without forcing the fabric. Fold the tent so's the walls and not the top will be exposed. Try to keep your tent covered when it's not pitched.

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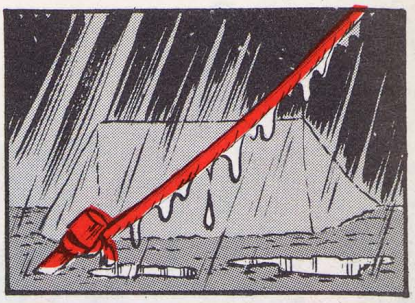
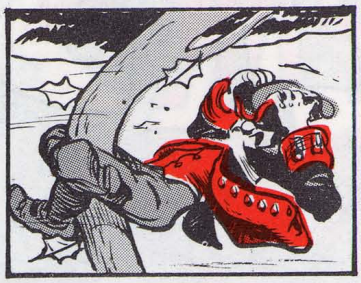
PROTECT IT



Against Rain: Before the lines get soaked, loosen 'em enough so's the shrinkage won't tear the tent.



Against Wind: When the wind comes up strong, batten 'er down pronto. Tighten all ropes **if it's not raining;** close all entrances and corners; fasten the walls to the footstop pins.

Against Fire: Watch your stove . . . and those butts. Use spark arresters or draft diverters (check TM 10-725 with change 1) and place shields all around stovepipe openings. Get intimate with your heater—know it inside out. And, be sure there's a fire extinguisher or pail of water within hollering distance.

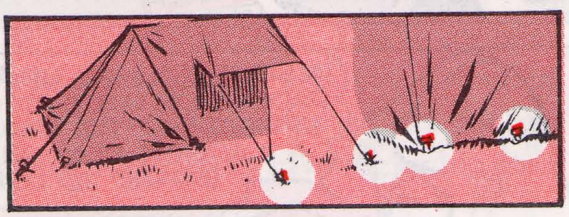
TEEPEE LOOKSEE

It's smart to develop the habit of eyeballing your teepee as you come and go. Pay special attention to the seams, bindings, lines, and all places where the tent takes a lot of strain.

Be 'specially alert for signs of mildew or any foreign matter like dirt, grease or drippings that might have collected on the tent. And be doubly sure to be on the lookout for small rips, holes, split seams, loose grommets, lines that are beginning to rot—anything that doesn't look copacetic.

When you eyeball the wooden pins, look for cracks, splits, distorted ends and flattened or broken points. On the poles—both ridge and upright—look for cracks, splits, broken joints, and missing and bent spindles.

A good line's an absolute necessity for your canvas castle. So check 'em all carefully and regularly—guy lines, eave lines, footstops, door fasteners . . . all of 'em!

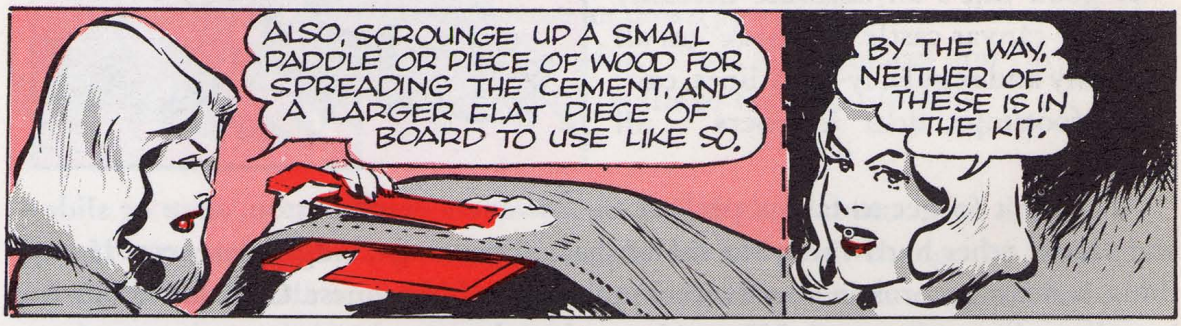


And don't forget to take a peek at the fasteners—tack-button, snap or slide—and all the other hardware your shelter has: slips, rings, ridge plate, etc. If anything is missing, broken or gets stuck, take care of it, soonest. Cool is the rule for handling all tent fasteners. Nix on the yank and tug.

You'll be able to patch up most of your minor troubles yourself, such as mending small rips and tears. The time to act is as soon as you spot the damage. But, make sure the tentage is clean and dry before you repair it. Otherwise you could aid that enemy—mildew.

Tears up to 4¾ inches can be fixed with cement patches; those larger will require hand or machine-sewn patches. (Natch, you won't bother with machine work.) The one exception is that grommet-support patches are hand-sewn no matter what size the damage is.

Your supply sergeant's Repair Kit, Tentage (FSN 8340-262-5767) contains all the gadgets and materials you'll need for any kind of fix-up . . . and includes that dandy "Do-it-yourself"—pub, TM 10-633 (Sep 48). You can find the latest FSN's of all components of the kit in SM 10-4-8340-A11 (5 Aug 58).



The patches come in three sizes. Pick one that leaves about 3/4 inch all around the rip or tear. Maybe this chart'll help:

Patch No.	SIZE (Inches) Diameter or Length of Hole or Rip	SIZE (Inches) Diameter of Patch	Federal Stock No.
1	1 1/2	3	FSN 8340-241-8187
2	2 7/8	4 3/8	FSN 8340-241-8188
3	4 3/4	6 1/4	FSN 8340-241-8189

The cement comes in pint cans and is called: Adhesive, rubber synthetic, butyl, liquid form, for tent patching (FSN 8040-266-0850).

A cement patch is a good field fix, but a hand-sewn job is likely to be even better, especially when the damage is in any part of the tent that takes a lot of strain.

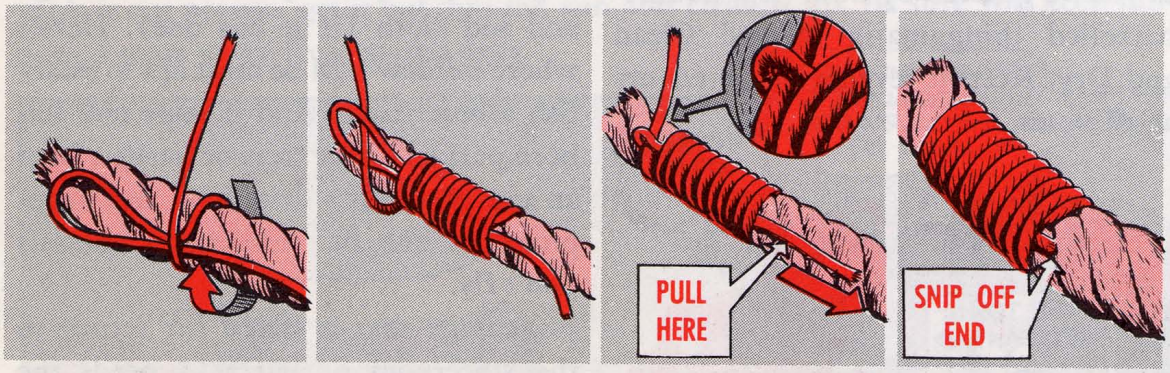
Your supply sergeant can give you all the stuff you need:

NEEDLE, SAILMAKER'S, steel size 15	FSN 8315-262-1415
THREAD, cotton	FSN 8310-187-3774
BEESWAX, technical, 2-oz ball	FSN 9160-253-1173
CLOTH, cotton duck, 12.29 oz olive drab	FSN 8305-170-3902
PALM, sewing, rh, sailmaker's and saddler's	FSN 5120-162-7447
SHEARS, bent trimmers, 10-in length	FSN 5110-161-6918

You don't have to be a pro to do a good job with a cement or hand-sewn patch. But the closer you follow the dope spelled out in TM 10-633, the less guff you'll have to take from Dame Nature when she's in a nasty mood.

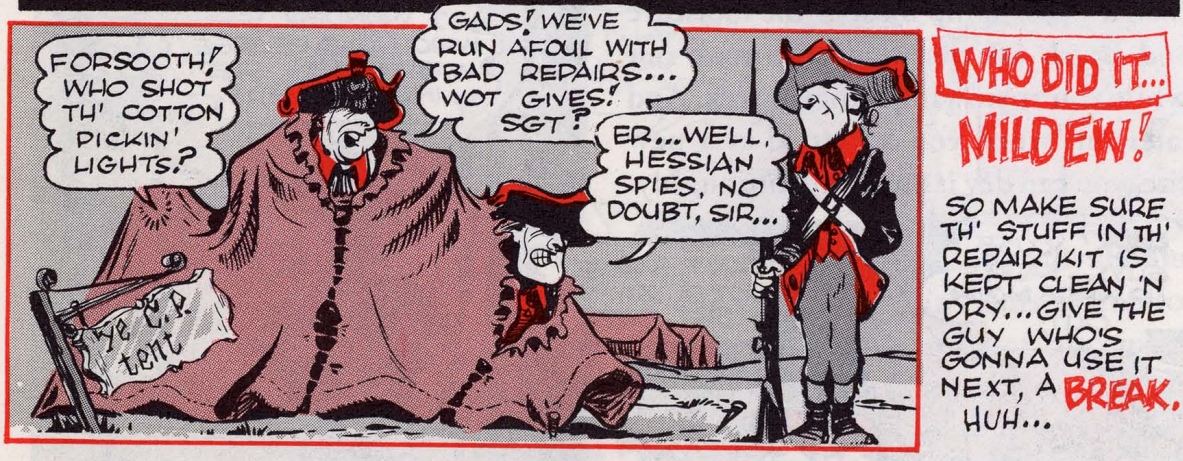
Incidentally, sewing's also the right field fix if your shelter is missing a grommet. Look in the repair kit for: Grommet, metallic, w/spur washer . . . FSN 5325-231-6622.

Lines and fasteners can also be a pain in your bivouac area. You'll get more wear and tear out of your ropes if you reverse 'em, end for end, every so often. And, if the wear is limited to one section, just lop off the worn part. If a line gets damaged, cut and splice it. If you want to keep ropes from raveling, whip their ends. (It's all there in TM 10-633.)



About fixing the fasteners: Get hold of TM 10-269 (Jul 48)—Repair of Canvas and Webbing—for the best info. Could be, though, that the fastener simply needs a little lubing or maybe a piece of fabric is caught in between the two halves of the track. Next time your zipper snags, unzip it and look for the trouble. If the fastener works stiffly, try rubbing some mild soap, wax or lead-pencil graphite on each side of the track. Then work it back and forth a couple times. This should do the trick.

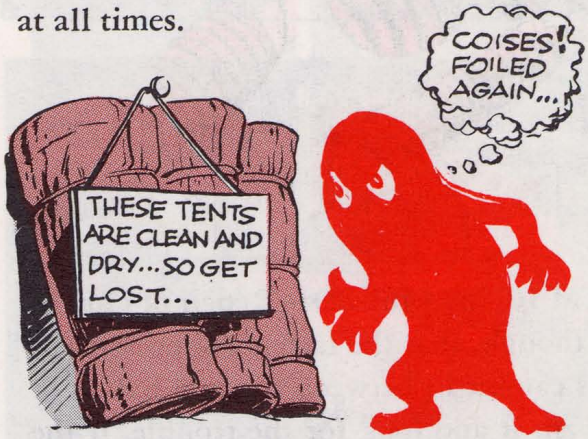
One word of caution: Whenever you use the canvas repair kit, make sure the material and thread are clean and dry when you put them back. You've gotta keep up a steady campaign against mildew.



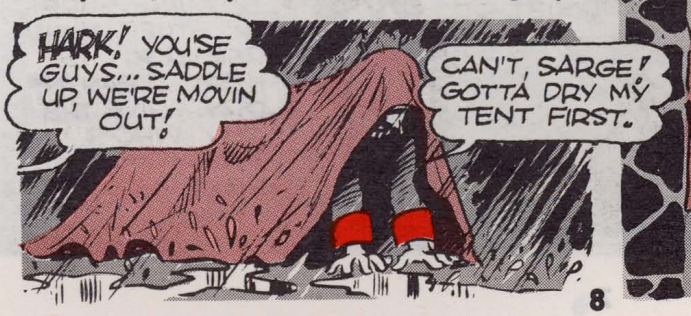
The Storage Story

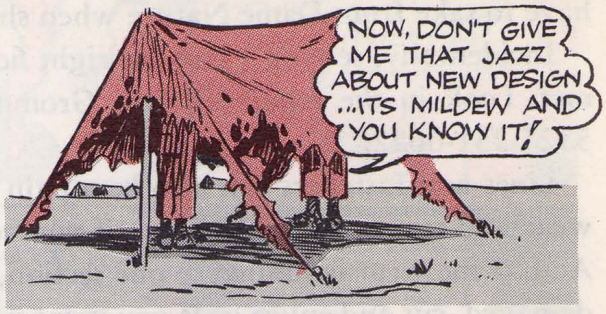
Ol Moldy's the slimy villain in this piece too. He's mighty dangerous in a steaming, stinking jungle, but he's likely to be just as deadly any place the weather combines warmth and dampness. Be especially on the lookout for him when your tent's going into storage.

Your best weapon against mildew—as you've guessed by now—is a double-barrelled thingamajig labeled Clean and Dry. Keep it leveled at the enemy at all times.



Of course this will be pretty hard to do sometimes in the field. When the Man says go, you may not have time to dry out your tent before you roll it, like the good book says. But, if your shelter is at all wet, even from dew, it takes less than a wink to flip most of the moisture and brush off the mud and gook out while you're stowing it for the trek. And later on, when you're settled at a new site, you can dry it out more thoroughly.





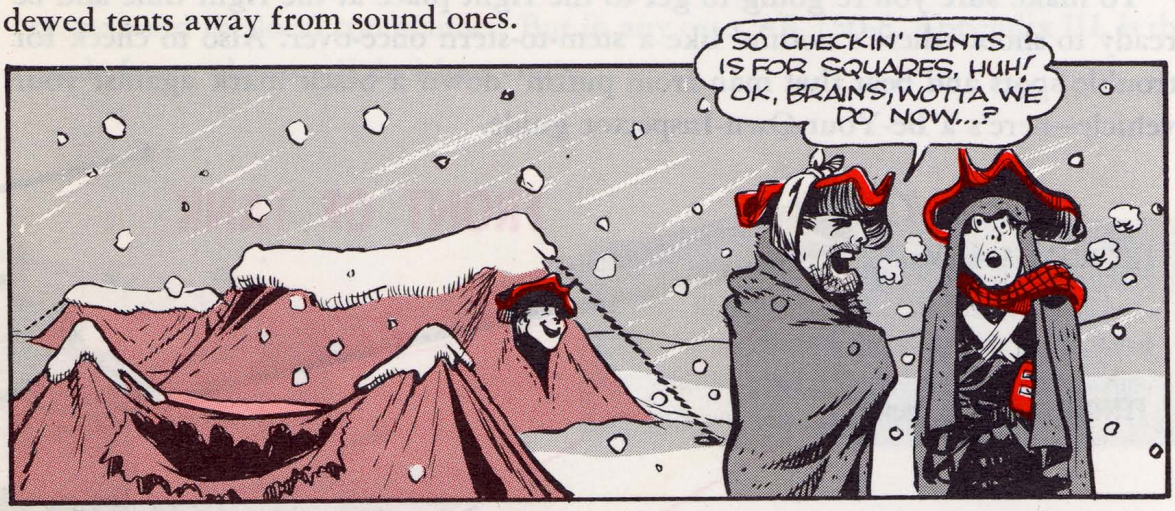
Try real hard to get the seams and edges dry, especially the bottom edge and sod cloth (if it has one). Here's where mildew will be most apt to establish a beachhead. And if your tent has been parked under trees or bushes, keep an eye peeled for drippings and droppings . . . and be thankful elephants don't fly.

Tentage that is slated for return to the storeroom or barracks needs the same drying out and cleaning treatment—only more so. It should be hung to dry in the sunlight, if possible (at least 8 inches off the ground) or indoors if the room's airy enough (at least 4 inches off the floor). Then it should be brushed, swept or otherwise thoroughly cleaned of dirt and grit. Don't forget, ropes need special care of the same sort.

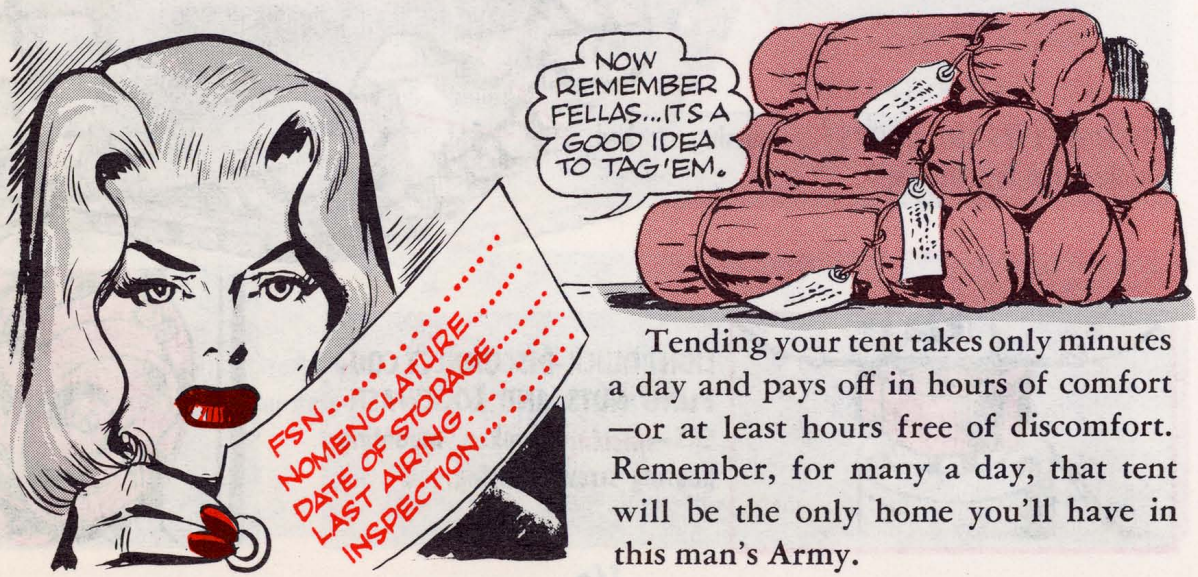
When the tents are stacked, make sure the lumber used for dunnage is dry and clean. Don't use green lumber—could start mildew growing.

Pack the tents in the bags or containers they came in, if you can, making sure the containers are fit to protect 'em from moldiness. If the tentage is going to be stacked near ventilators or any opening that might admit moisture, pack it in a waterproof covering.

The storage area, whether it's a barracks, king-size tent or open shed, has to provide weather protection and be clean to do a good job, and it has to be ventilated when the weather's right. If you find a tent that shows signs of mildew, yank it out pronto, get it out into the sun and clean it up. Be sure you keep mildewed tents away from sound ones.

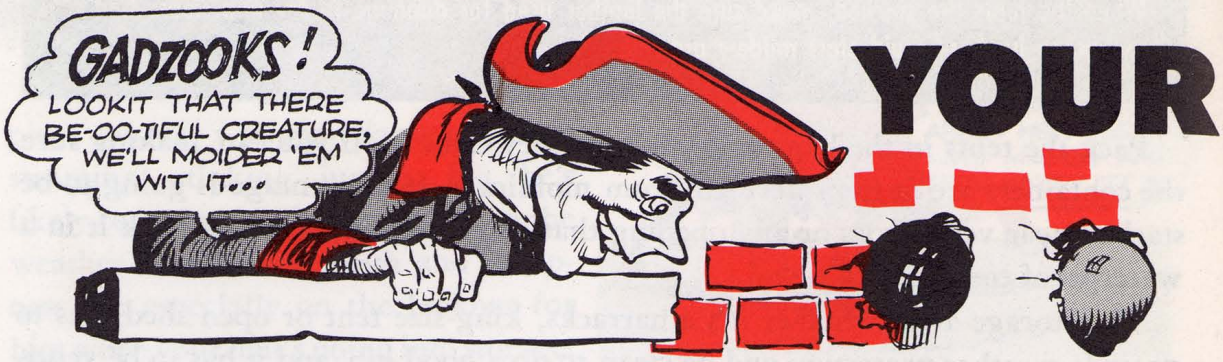


Incidentally, it's smart to make sure when tentage is stored that it bears tags containing nomenclature, stock number, the date of storage and space for the date of the last airing, erection and inspection. This way there's no trouble following the TM's instruction to issue tents on a first-in, first-out basis.



Tending your tent takes only minutes a day and pays off in hours of comfort —or at least hours free of discomfort. Remember, for many a day, that tent will be the only home you'll have in this man's Army.

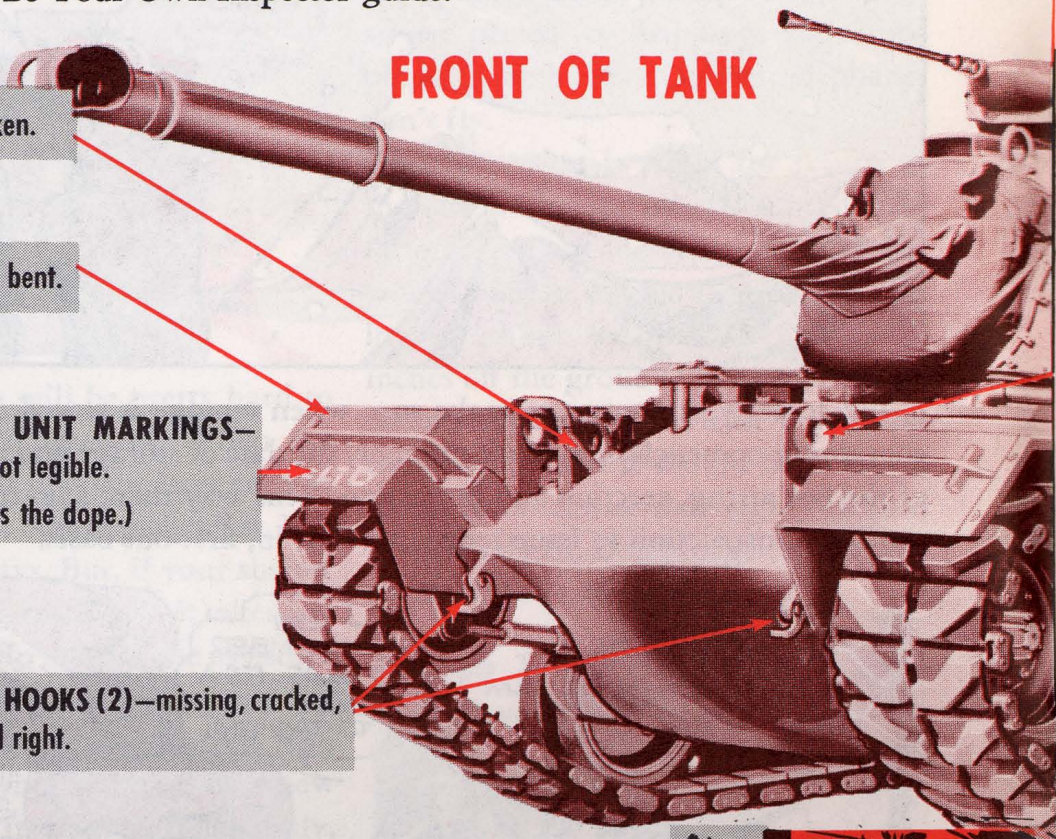
BE YOUR OWN INSPECTOR ON



Yes-sir-ee, man, that M48A2 is real hip, the swingingest—'specially with that space-age fuel injection job.

To make sure you're going to get to the right place at the right time and be ready to shoot—there's nothin' like a stem-to-stern once-over. Also to check for trouble spots and beat that man from puttin' down a black mark against your vehicle—here's a Be-Your-Own-Inspector guide.

FRONT OF TANK

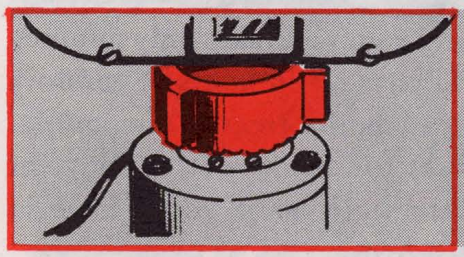


LIFTING EYES—broken.

FENDERS—missing, bent.

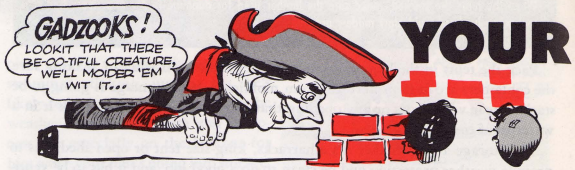
NATIONAL AND UNIT MARKINGS—missing, wrong, not legible. (AR 746-2300-1 has the dope.)

TOWING EYES AND HOOKS (2)—missing, cracked, broken, not installed right.



LIGHT QUICK-DISCONNECT COUPLING NUTS AND LOCKWASHERS—missing, broken, mounting housing screws missing.

BE YOUR OWN INSPECTOR ON



YOUR M48A2 TANK

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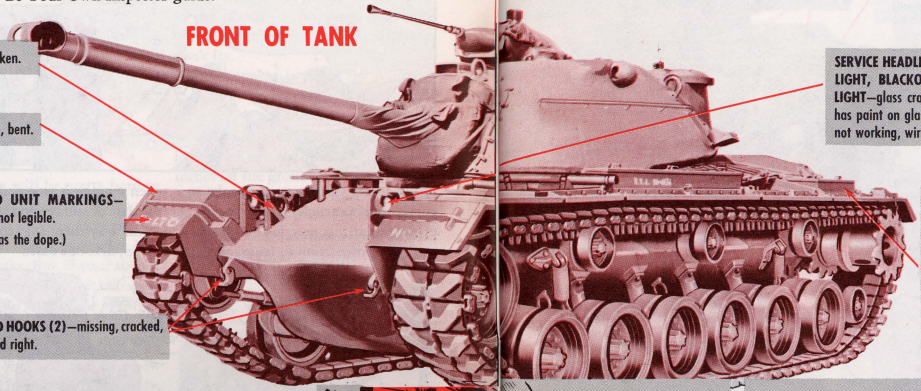
The serious deficiencies are in **bold type.** And there oughta be a word about that—What's serious and what's not? One guy's got one idea what it ought to be and somebody else has another. It's something that's gotta be settled between the inspector and the local commander. But in any case, AR 750-8, Appendix III, is the guide from whence all decisions come.

FRONT OF TANK



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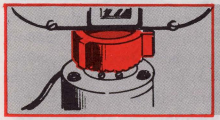
TOWING EYES AND HOOKS (2)—missing, cracked, broken, not installed right.

SERVICE HEADLIGHT, BLACKOUT SERVICE HEADLIGHT, BLACKOUT MARKER LIGHT, INFRARED LIGHT—glass cracked, clouded, contains moisture, has paint on glass, adjusting bracket not set right, not working, wire loose, frayed or broken.

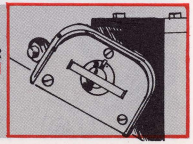
STOWAGE BOXES—missing, loose, hinges and clamps bent, bent lids, broken compartments.



LIGHT QUICK-DISCONNECT COUPLING NUTS AND LOCKWASHERS—missing, broken, mounting housing screws missing.

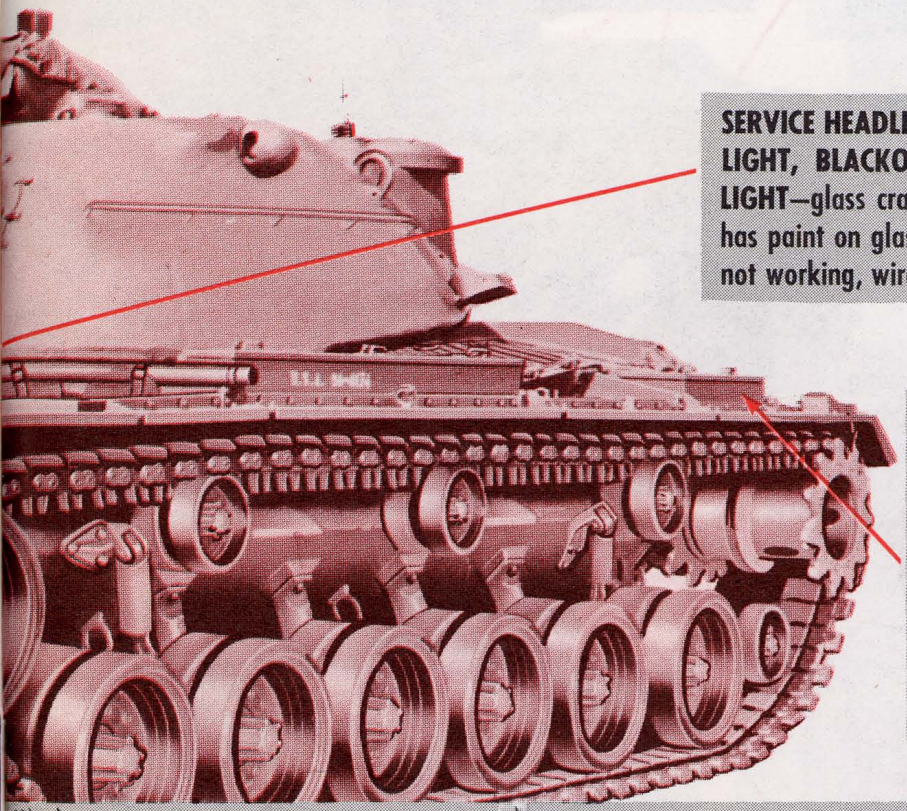
HORN—missing, bent, not working right, wire frayed, broken or missing.

FIRE EXTINGUISHER EXTERIOR CONTROL HANDLE—seal broken, pulled.

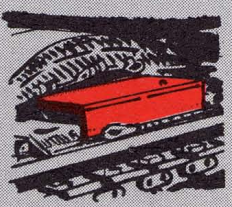


M48A2 TANK

The serious deficiencies are in **bold type.** And there oughta be a word about that—What's serious and what's not? One guy's got one idea what it ought to be and somebody else has another. It's something that's gotta be settled between the inspector and the local commander. But in any case, AR 750-8, Appendix III, is the guide from whence all decisions come.



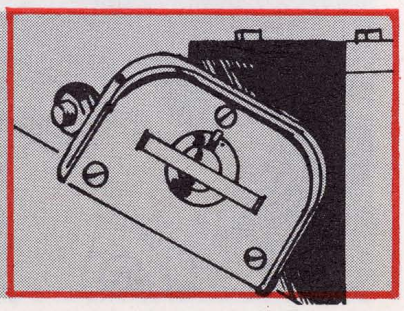
SERVICE HEADLIGHT, BLACKOUT SERVICE HEADLIGHT, BLACKOUT MARKER LIGHT, INFRARED LIGHT—glass cracked, clouded, contains moisture, has paint on glass, adjusting bracket not set right, not working, wire loose, frayed or broken.



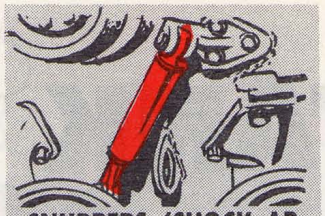
STOWAGE BOXES—missing, loose, hinges and clamps bent, bent lids, broken compartments.

HORN—missing, bent, not working right, wire frayed, broken or missing.

FIRE EXTINGUISHER EXTERIOR CONTROL HANDLE—seal broken, pulled.



LEFT SIDE OF TANK

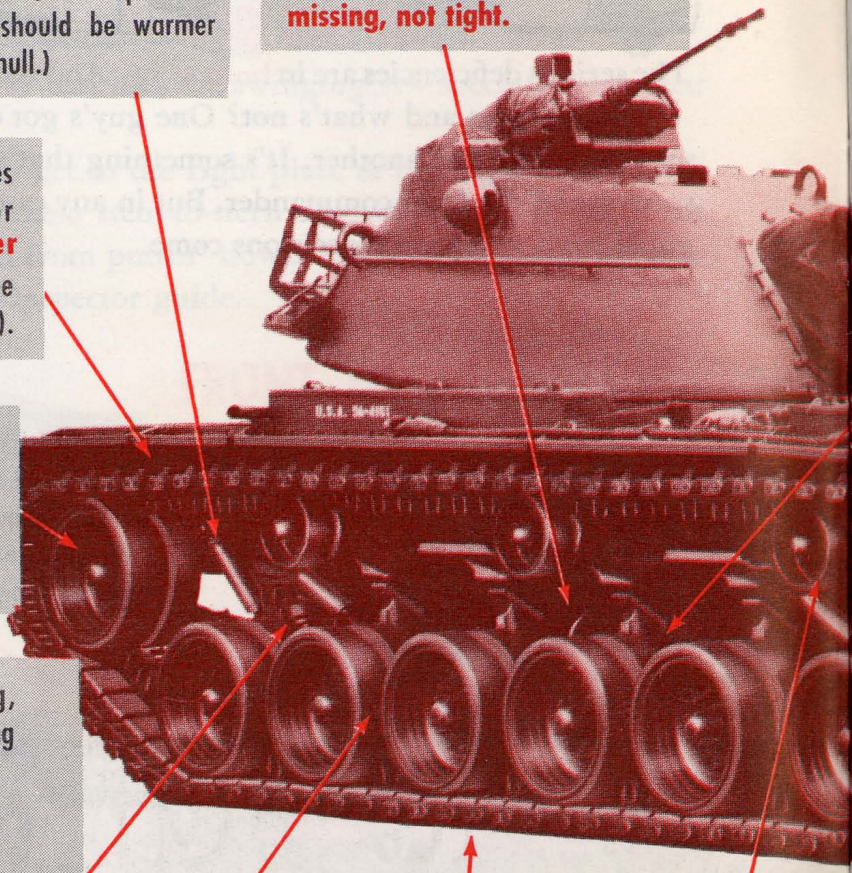


SNUBBERS (SHOCK ABSORBERS)—bent lower yoke weld cracked or separated. (After operation they should be warmer than hull.)

TORSION BARS—broken (use bar under roadwheel).

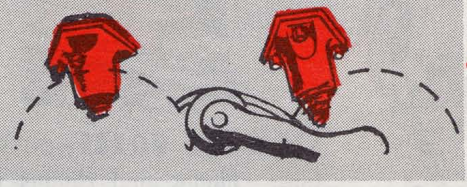
TORSION BAR END PLUG BOLT—**missing, not tight.**

TRACKS—dead bushing (indicates dead blocks), badly worn or **broken track block center guides,** too loose, **too tight.** (See TM 9-7022 for proper adjustment).



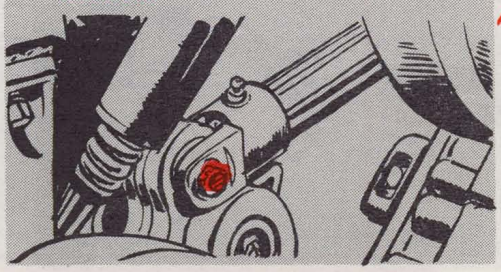
COMPENSATING IDLER WHEEL—**hub cap bolts loose or missing,** nuts loose or missing, lube fittings missing or mashed.

BUMPER SPRINGS—missing, broken, spring housing mounting bolts loose.



SUSPENSION—dirty, mud caked or debris in system.

ADJUSTMENT LOCKING BOLT—nut lubed, **locking bolt not secured.**



SUPPORT ROLLERS—worn, loose bonding, separated from rim, **seals leaking,** hub cap bolts and wheel nuts **missing, loose,** cracked, mounting brackets cracked, **busted off or loose,** bolts missing, lube fittings missing or mashed.

LEFT SIDE OF TANK

SNUBBERS (SHOCK ABSORBERS)—bent lower yoke weld cracked or separated. (After operation they should be warmer than hull.)

TORSION BARS—broken (use bar under roadwheel).

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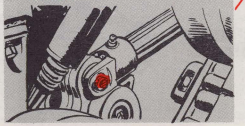

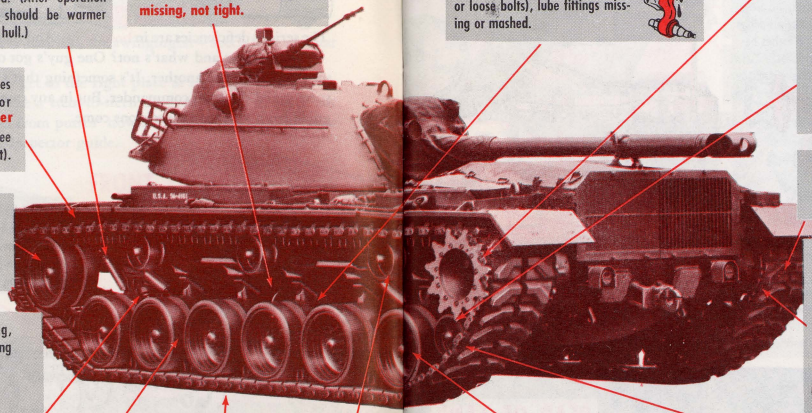

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SUPPORT ROLLERS—worn, loose bonding, separated from rim, **seals leaking,** hub cap bolts and wheel nuts **missing, loose,** cracked, mounting brackets cracked, **busted off or loose,** bolts missing, lube fittings missing or mashed.

IDLER WHEEL ARM—bent, cracked or broken.

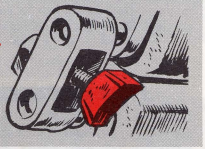
ROAD WHEEL SUPPORT ARM— (watch for visible lube leaks, space or loose bolts), lube fittings missing or mashed.

SPROCKET—badly worn. TB Ord 1018 (24 July 58) tells when to ask for a new one and gives info on profile gages. Also see TM 9-7022, page 417.

TRACK TENSION IDLER WHEEL (if you have one)—**safety nuts on hub tapered sleeves missing or loose, seals leaking,** tires worn or loose from rim, hub cap loose or missing, **lube plugs missing** or mashed. (MWO 9-2300-202-20 (5 Dec 58) tells you how to get rid of the idler assemblies.)

TRACK BLOCKS—cracked, gouged or worn, TM 9-2630-200-14 (Aug 58) gives the scoop.

TRACK WEDGES—loose, missing.



ROAD WHEELS—leaking seals, loose bonding, rubber badly worn, deep tears or gouges, flat spots, nuts missing or loose, **hub caps and bolts missing, loose, broken** or **leaking,** lube fittings missing or mashed, loose on spindle.

END CONNECTORS—badly worn or nuts and mounting bolts loose.

RIGHT SIDE OF TANK

Inspect the same way as the left side—only in reverse, starting with the sprocket and ending with the compensating idler wheel.

IDLER WHEEL ARM— **bent, cracked or broken.**

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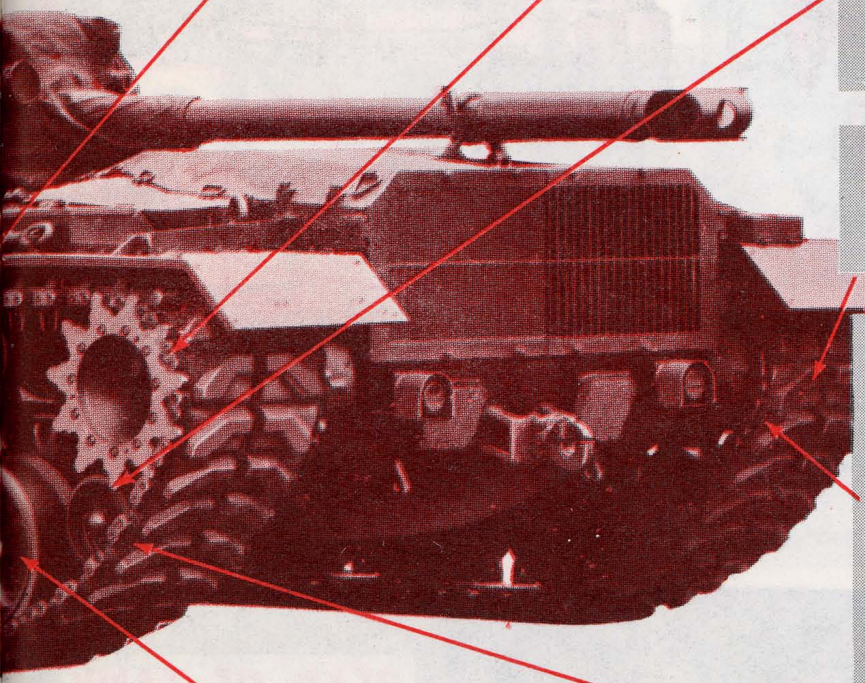

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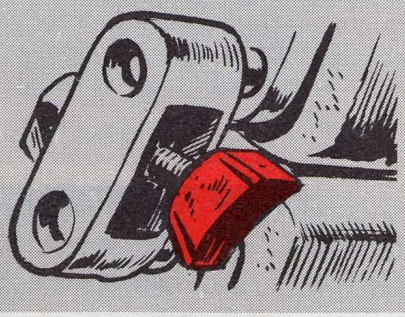


ROAD WHEELS—leaking seals, loose bonding, rubber badly worn, deep tears or gouges, flat spots, nuts missing or loose, **hub caps and bolts missing, loose, broken** or **leaking,** lube fittings missing or mashed, loose on spindle.

END CONNECTORS— badly worn or nuts and mounting bolts loose.

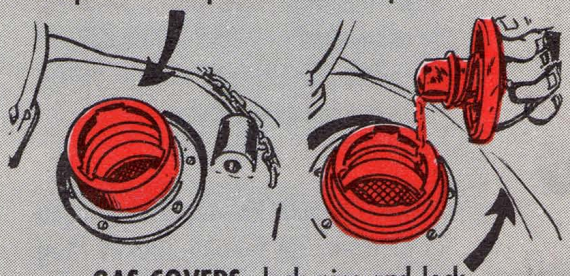
RIGHT SIDE OF TANK

Inspect the same way as the left side—only in reverse, starting with the sprocket and ending with the compensating idler wheel.

ACCESS DOORS (GRILLE DOORS)—louvers clogged, handles bent, missing or broken, pins missing, hinges missing, broken, bent or hinge pins missing, pins rusty, not lubed, bolts loose or missing.

ARMORED VENTILATION COVER—loose.

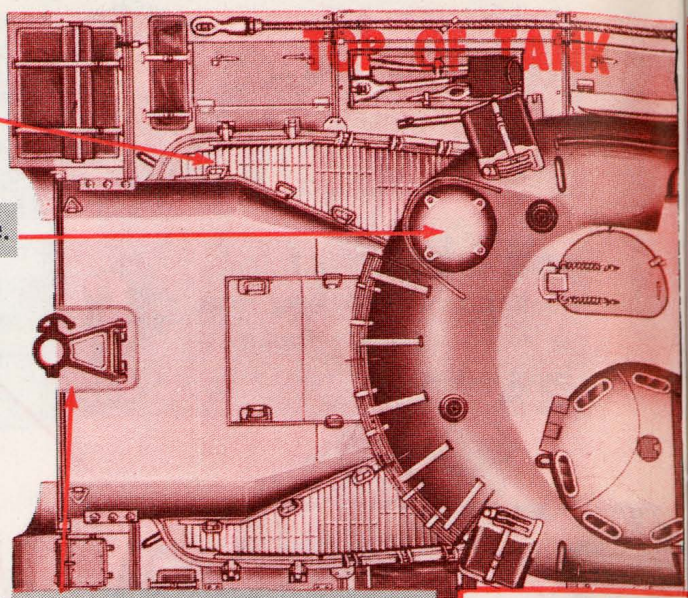
GAS FILLER TUBE—gas caps dirty, gasket missing, pressure relief valve stuck, filter screen missing, cracked, corroded, grommet assembly not properly adjusted, fuel too full (should be 6 to 8 inches below top of filler cap to allow for expansion).



GAS COVERS—lock pins and lock pin chain missing, hinge sticks.

ANTENNA—**broken,** bent, kinked, **rubber grommets missing,** insulator cracked, **not securely mounted,** check section ends for paint and corrosion, dirt and moisture not cleaned away.

TOP OF TANK



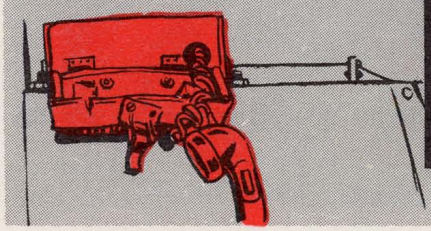
GUN TRAVEL LOCK—**won't seat gun properly, lock broken,** not lubed, threads stripped, stanchion cracked.

CAN RACK, STRAPS, BOLTS AND RACKS FOR OVE—missing, broken.

PERSONNEL HEATER VENTILATOR TUBE—**broken,** loose clamps or brackets.

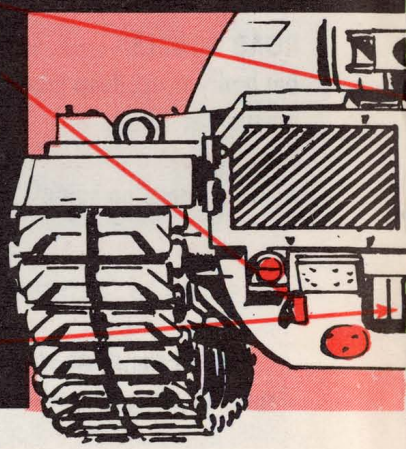
REAR OF TANK

TELEPHONE BOX—cord retriever does not rewind, retriever pins and pulleys missing, screws missing, ventilation holes clogged, moisture inside, cord missing or broken, door bent, snap ring pin locks missing, light broken or missing, locking levers and cams cracked, phone rest foam cushion missing, bad gasket.



TOWING HOOKS—missing or broken, not installed right.

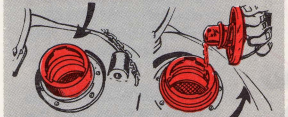
TOWING PINTLE – missing, broken, won't lock or rotate, spring broken, mounting bracket cracked, dirty, not lubricated, lube fittings missing or mashed.



ACCESS DOORS (GRILLE DOORS)—louvers clogged, handles bent, missing or broken, pins missing, hinges missing, broken, bent or hinge pins missing, pins rusty, not lubed, bolts loose or missing.

ARMORED VENTILATION COVER—loose.

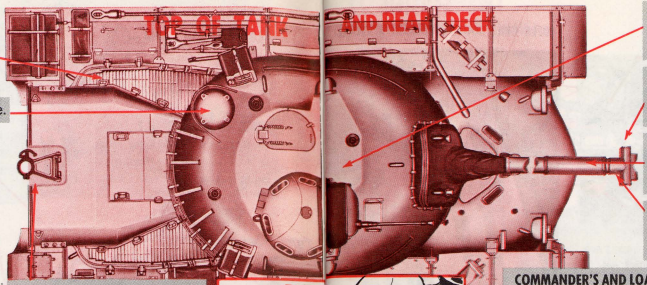
GAS FILLER TUBE—gas caps dirty, gasket missing, pressure relief valve stuck, filter screen missing, cracked, corroded, grommet assembly not properly adjusted, fuel too full (should be 6 to 8 inches below top of filler cap to allow for expansion).



GAS COVERS—lock pins and lock pin chain missing, hinge sticks.

ANTENNA—**broken,** bent, kinked, **rubber grommets missing,** insulator cracked, **not securely mounted,** check section ends for paint and corrosion, dirt and moisture not cleaned away.

TOP OF TANK AND REAR DECK



GUN TRAVEL LOCK—**won't seat gun properly, lock broken,** not lubed, threads stripped, stanchion cracked.

CAN RACK, STRAPS, BOLTS AND RACKS FOR OVE—missing, broken.

PERSONNEL HEATER VENTILATOR TUBE—**broken,** loose clamps or brackets.

DIRECT VISION BLOCKS—broken, scratched, paint on glass, air bubbles, moisture stains.

BLAST DEFLECTOR—**loose,** not seated right, moisture in bore, cracks, dents, burrs, muzzle cover, missing, torn or rotten.

BORE EVACUATOR CYLINDER—**cracked,** dented, corroded, inner sealing lips damaged, threads stripped.

MUZZLE END OF TUBE—**cracks** (notify Ordnance) and burrs in bore recess.

COMMANDER'S AND LOADER'S HATCHES—**won't open,** won't lock in either open or closed position, crash pads torn, **broken hinges,** loader's balance springs do not work, not lubricated.

GUN SHIELD AND MACHINE GUN COVERS—bolts loose, canvas missing, torn or rotten, clamps loose, missing, machine gun cover and clamp missing.

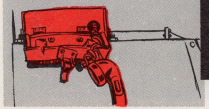
HAND RAIL—broken, bent.

STOWAGE BOXES—dirty, hinges and hasps rusty, bent, jammed, broken. Oily rags present.

END HOUSING (RANGE FINDER) ARMOR COVERS—bolts loose, not seated right, end housing glass broken, dirty, condensation inside glass, scratches.

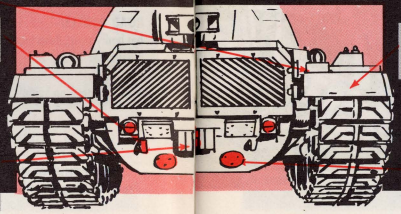
REAR OF TANK

TELEPHONE BOX—cord retriever does not rewind, retriever pins and pulleys missing, screws missing, ventilation holes clogged, moisture inside, cord missing or broken, door bent, snap ring pin locks missing, light broken or missing, locking levers and cams cracked, phone rest foam cushion missing, bad gasket.



TOWING HOOKS—missing or broken, not installed right.

TOWING PINTLE — missing, broken, won't lock or rotate, spring broken, mounting bracket cracked, dirty, not lubricated, lube fittings missing or mashed.



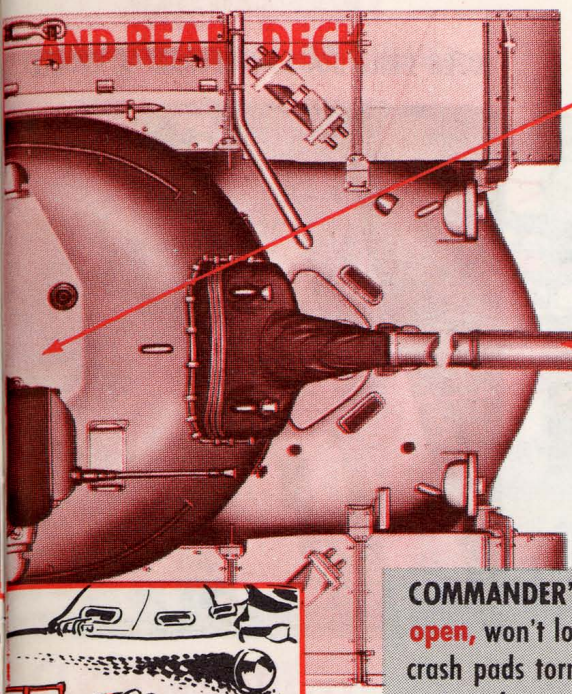
FINAL DRIVE LUBE LEVEL PLUGS AND DRAIN PLUG— **missing, loose or leaks.**

FINAL DRIVE—(Open access doors.) Universal joints locking nuts not safety wired.

FENDERS—**interfere with track pads,** bent, **loose,** missing.

BLACKOUT MARKER TAILLIGHT, SERVICE STOPLIGHT, SERVICE TAILLIGHT — glass cracked, contains moisture, has paint on glass, **won't work.**

ACCESS PLATES (3)—bolts loose or missing, plates missing.



DIRECT VISION BLOCKS—broken, scratched, paint on glass, air bubbles, moisture stains.

BLAST DEFLECTOR—**loose,** not seated right, moisture in bore, cracks, dents, burrs, muzzle cover, missing, torn or rotten.

BORE EVACUATOR CYLINDER—**cracked,** dented, corroded, inner sealing lips damaged, threads stripped.

MUZZLE END OF TUBE—**cracks** (notify Ordnance) and burrs in bore recess.

COMMANDER'S AND LOADER'S HATCHES—**won't open,** won't lock in either open or closed position, crash pads torn, **broken hinges,** loader's balance springs do not work, not lubricated.

HAND RAIL—broken, bent.

GUN SHIELD AND MACHINE GUN COVERS—bolts loose, canvas missing, torn or rotten, clamps loose, missing, machine gun cover and clamp missing.

STOWAGE BOXES—dirty, hinges and hasps rusty, bent, jammed, broken. Oily rags present.

END HOUSING (RANGE FINDER) ARMOR COVERS—bolts loose, not seated right, end housing glass broken, dirty, condensation inside glass, scratches.

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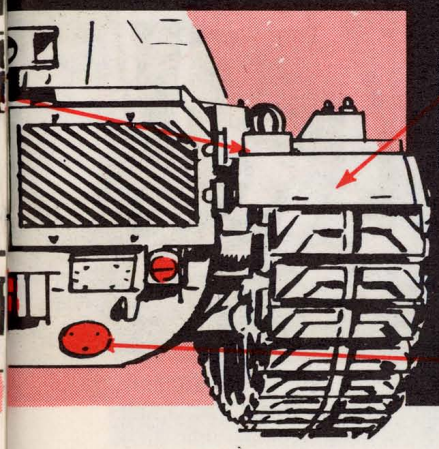

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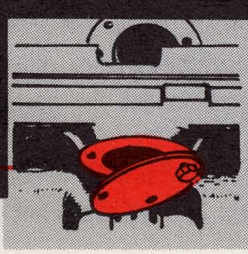


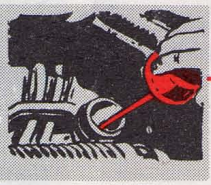
ACCESS PLATES (3)—bolts loose or missing, plates missing.

ENGINE

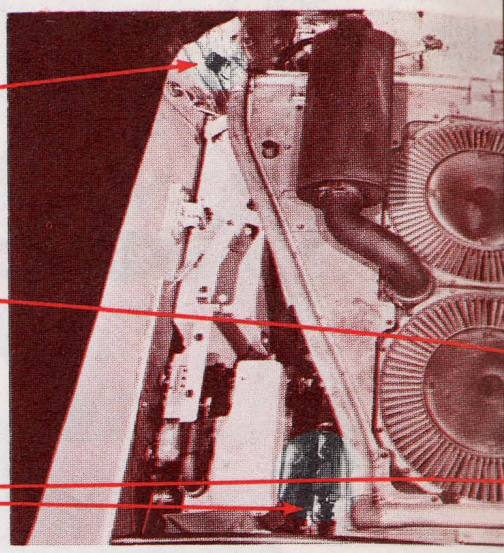
(OPEN GRILL DOORS AND MAKE A VISIBLE

TRANSMISSION OIL LEVEL—too low (bring level up to FULL mark), cap won't secure or seat right.

MAIN ENGINE OIL LEVEL—too low (should be between ADD and FULL marks) cap won't seat or secure right.



AIR CLEANER TUBES—connections loose or unfastened, leaks air.



DRIVER'S

SHIFTING LINKAGE—control lever and linkage connections not lubed, selector working sluggishly or completely out of line, control lever positions not synchronized with shifting control indicator back on transmission.

FIRE EXTINGUISHERS (3)—lines disconnected, not filled, seals broken, brackets loose, control

MAIN WARNING LIGHT—not working, cracked.

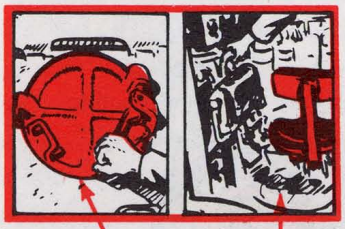
SLAVE CABLE RECEPTACLE—contacts burned, cover missing. See TB ORD 537, which gives you the full dope on slaving.

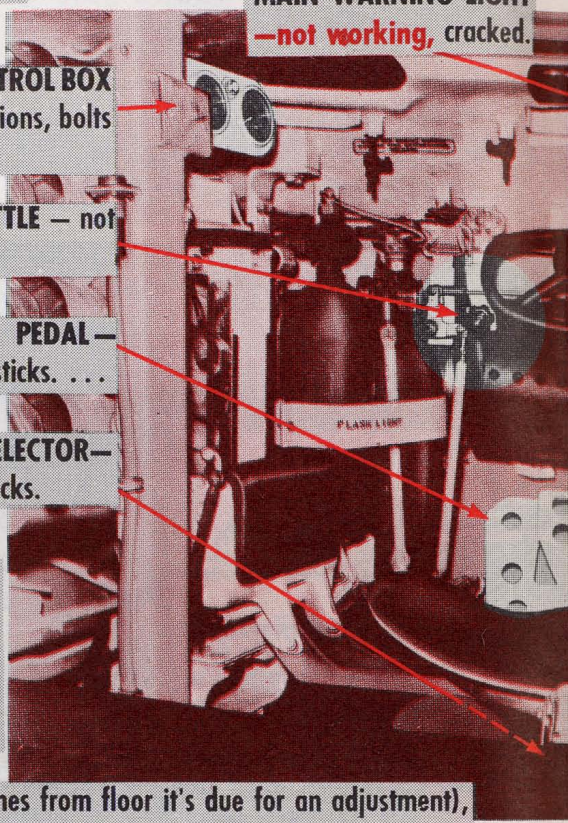
DRIVER'S CONTROL BOX—loose connections, bolts loose.

HAND THROTTLE—not working right.

ACCELERATOR PEDAL—won't work, sticks. . . .

FUEL VALVE SELECTOR—won't work, sticks.



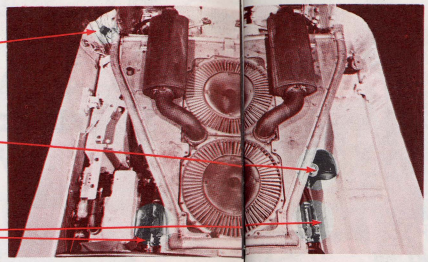


ESCAPE HATCH AND SEAT—seat handle broken, doesn't elevate, backrest missing or broken, leather frayed or torn, emergency release handle doesn't work. (Don't try this unless you've got a suspicioning that release handle won't work 'cause it's sure hard to get the hatch back in place.)

BRAKE CONTROLS—pedal too low (if it goes below four inches from floor it's due for an adjustment), pedal does not stay down in PARK, does not come up in NEUTRAL.

ENGINE

(OPEN GRILL DOORS AND MAKE A VISIBLE



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MAIN ENGINE OIL LEVEL—too low (should be between ADD and FULL marks) cap won't seat or secure right.

AIR CLEANER TUBES—connections loose or unfastened, leaks air.

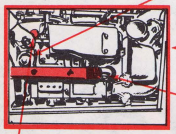
COMPARTMENT

CHECK FOR CLEANLINESS AND DAMAGE.)

HANDSTARTER ON LI'L JOE — won't work, cable ratchet won't catch, jammed.

AUXILIARY ENGINE — mounting bolts loose or missing.

EXHAUST PIPE ON AUXILIARY ENGINE—broken, bent, clamps loose, holes.



AUXILIARY ENGINE OIL LEVEL—(when checking, put the dipstick back into the oil filler tube as far as it'll go, but don't screw on the cap) too low (get it to FULL mark), too full (if above FULL mark drain some oil out).

DRIVER'S COMPARTMENT

SHIFTING LINKAGE—control lever and linkage connections not lubed, selector working sluggishly or completely out of line, control lever positions not synchronized with shifting control indicator back on transmission.

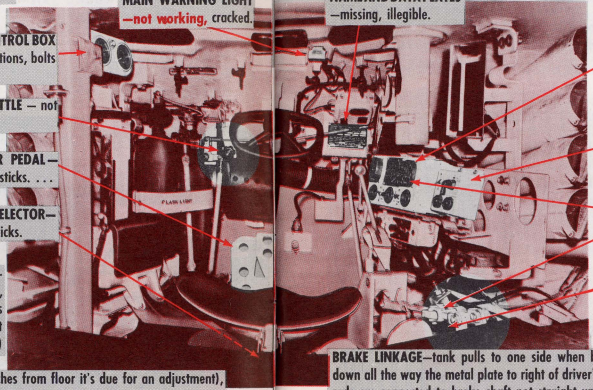
FIRE EXTINGUISHERS (3)—lines disconnected, not filled, seals broken, brackets loose, control handles and lock pins broken. Weight not checked every three months.

STEERING LINKAGE—steering wheel binds, doesn't return to NEUTRAL position when released, response not good. Steering wheel positions not synchronized with steering control indicator on transmission.

SLAVE CABLE RECEPTACLE — contacts burned, cover missing. See TB ORD 537, which gives you the full dope on slaving.

MAIN WARNING LIGHT —not working, cracked.

NAME AND DATA PLATES —missing, illegible.



DRIVER'S CONTROL BOX —loose connections, bolts loose.

HAND THROTTLE — not working right.

ACCELERATOR PEDAL — won't work, sticks. . . .

FUEL VALVE SELECTOR— won't work, sticks.

INSTRUMENT PANEL — switches broken or missing, not working, warning lights missing, gage glass cracked or broken.

PERISCOPE—optic cracked or dirty, mount loose.

AUXILIARY ENGINE CONTROL PANEL (start Li'l Joe)—warning lights and switches not working, choke control handle won't work, broken or too tight.

FUEL CUTOFF BUTTON DEGASSER)—not working.

PRIMER PUMP — won't work, leaks.

ESCAPE HATCH AND SEAT—seat handle broken, doesn't elevate, backrest missing or broken, leather frayed or torn, emergency release handle doesn't work. (Don't try this unless you've got a suspicioning that release handle won't work 'cause it's sure hard to get the hatch back in place.)

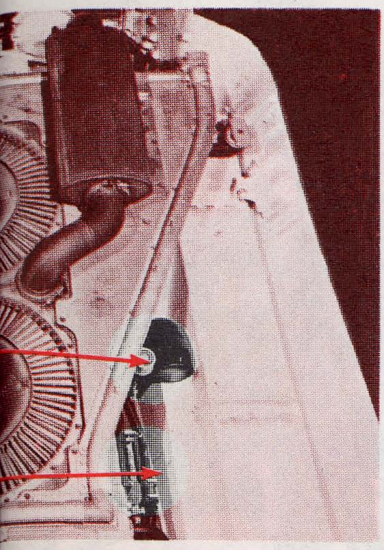
DRIVER'S HATCH DOOR HANDLES AND CONTROL LINKAGE—(in compartment)—not lubed, broken, linkage bent or broken, bolts loose.

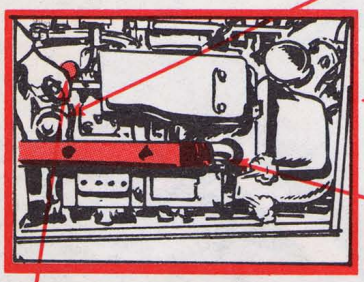
BRAKE CONTROLS—pedal too low (if it goes below four inches from floor it's due for an adjustment), pedal does not stay down in PARK, does not come up in NEUTRAL.

BRAKE LINKAGE—tank pulls to one side when brake is depressed, response not good, when pedal is down all the way the metal plate to right of driver's seat not straight across or the two levers where brake rods are connected to brake shaft not straight up and down.

COMPARTMENT

CHECK FOR CLEANLINESS AND DAMAGE.)



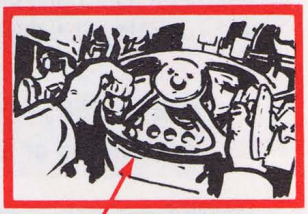


HANDSTARTER ON LI'L JOE — won't work, cable ratchet won't catch, jammed.

AUXILIARY ENGINE — mounting bolts loose or missing.

EXHAUST PIPE ON AUXILIARY ENGINE — broken, bent, clamps loose, holes.

AUXILIARY ENGINE OIL LEVEL—(when checking, put the dipstick back into the oil filler tube as far as it'll go, but don't screw on the cap) too low (get it to FULL mark), too full (if above FULL mark drain some oil out).



COMPARTMENT

handles and lock pins broken. Weight not checked every three months.

STEERING LINKAGE—steering wheel binds, doesn't return to NEUTRAL position when released, response not good. Steering wheel positions not synchronized with steering control indicator on transmission.

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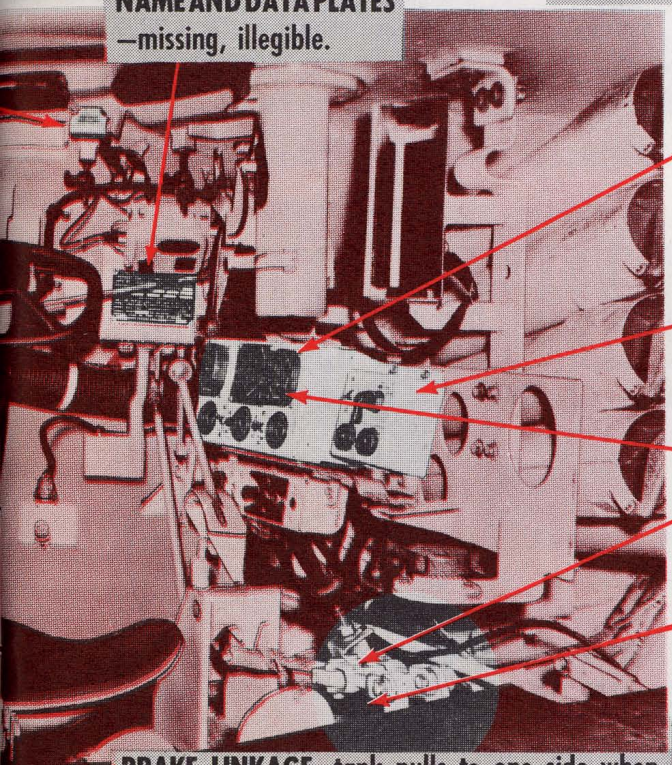

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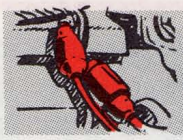
INSIDE

VENTILATOR BLOWER—won't work, connections loose, no circulation, loose exhaust pipe because of loose or missing screws.

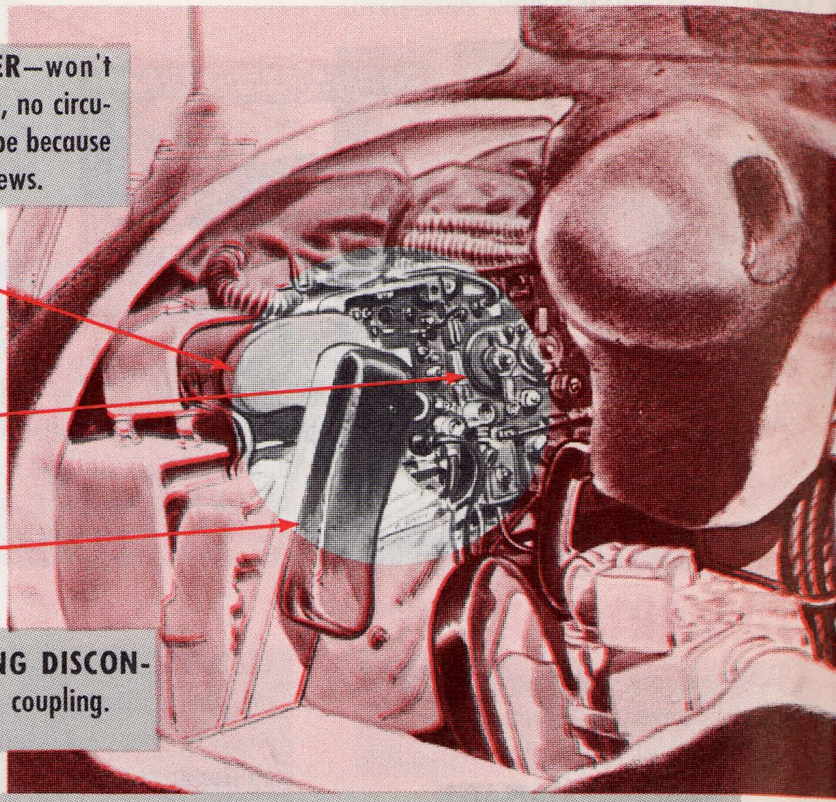
BINOCULARS—missing or broken.

RADIO—**corroded or loose connections, won't work,** mountings and controls not tight.

CRASH PADS—missing, worn, frayed or loose.

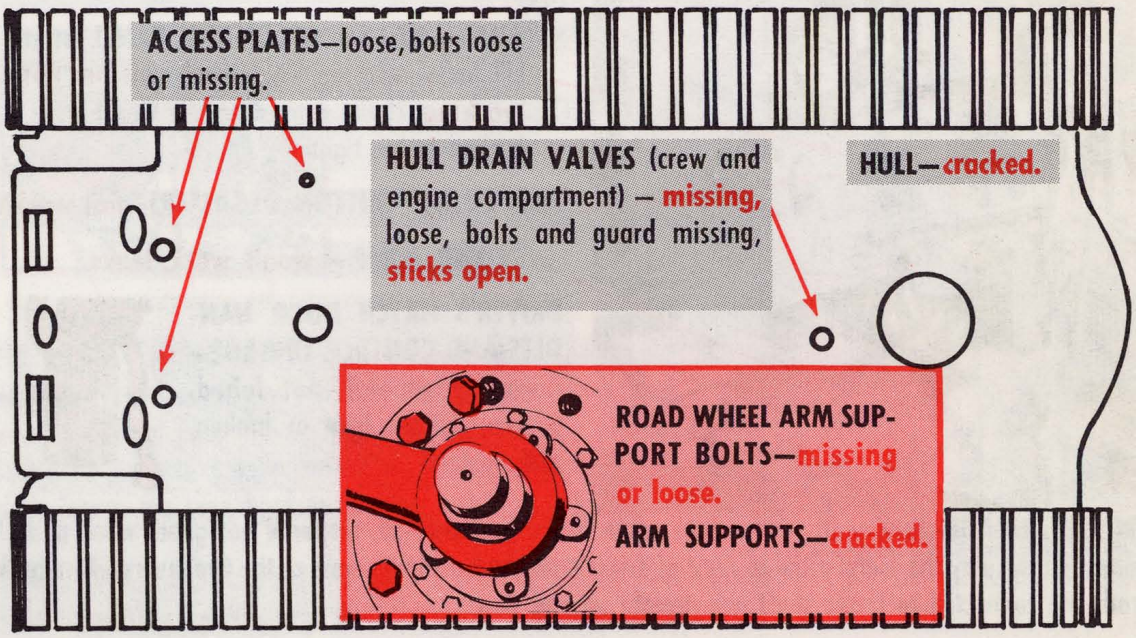


BULKHEAD WIRING DISCONNECT PLUGS—loose coupling.



PUBLICATIONS AND NECESSARY FORMS—missing, improperly stowed. Aboard should be TM 9-7022 (Mar 58), LO 9-7022 (Sept 57), Weapons Record Book (DA Forms 9-13 and 9-13-1), Tracked Vehicle Equipment Record (DA Form 2145) and Accident Identification Card (DD Form 518), Accident form (SF 91) and TM 11-284 (May 53) for your AN/GRC radio set.

UNDER TANK



ACCESS PLATES—loose, bolts loose or missing.

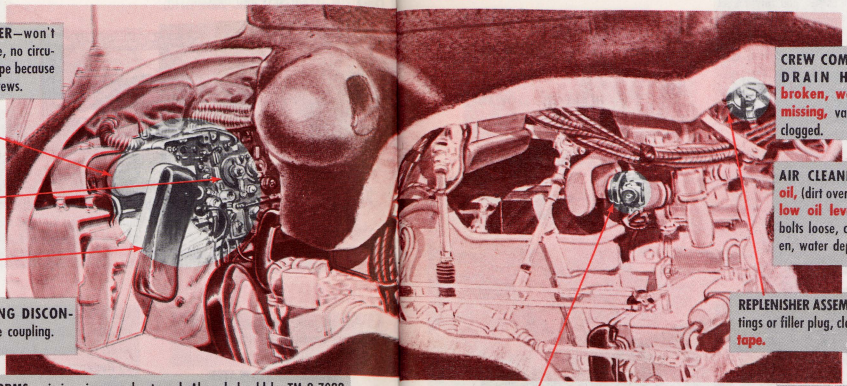
HULL DRAIN VALVES (crew and engine compartment) — **missing,** loose, bolts and guard missing, **sticks open.**

HULL—**cracked.**

ROAD WHEEL ARM SUPPORT BOLTS—**missing or loose.**

ARM SUPPORTS—**cracked.**

INSIDE TURRET



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BINOCULARS—missing or broken.

RADIO—**corroded or loose connections, won't work,** mountings and controls not tight.

CRASH PADS—missing, worn, frayed or loose.

BULKHEAD WIRING DISCONNECT PLUGS—loose coupling.

CREW COMPARTMENT DRAIN HANDLE—**broken, won't work, missing,** valve stuck or clogged.

AIR CLEANERS—**dirty oil,** (dirt over ¼-in deep) **low oil level, clogged,** bolts loose, clamps broken, water deposits.

REPLENISHER ASSEMBLY—leakage around hose fittings or filler plug, clamps loose, **broken indicator tape.**

PERISCOPE—scanning lever or boresight knob locking levers don't work.

INTERCOM PHONE—**loose connections, won't work, bad mike or headset.**

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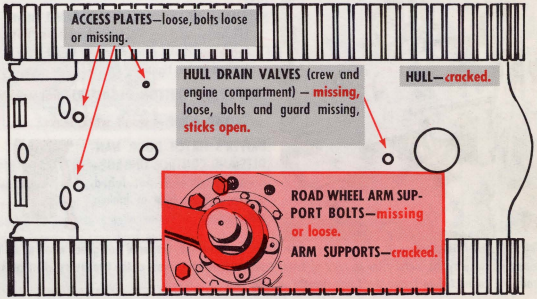

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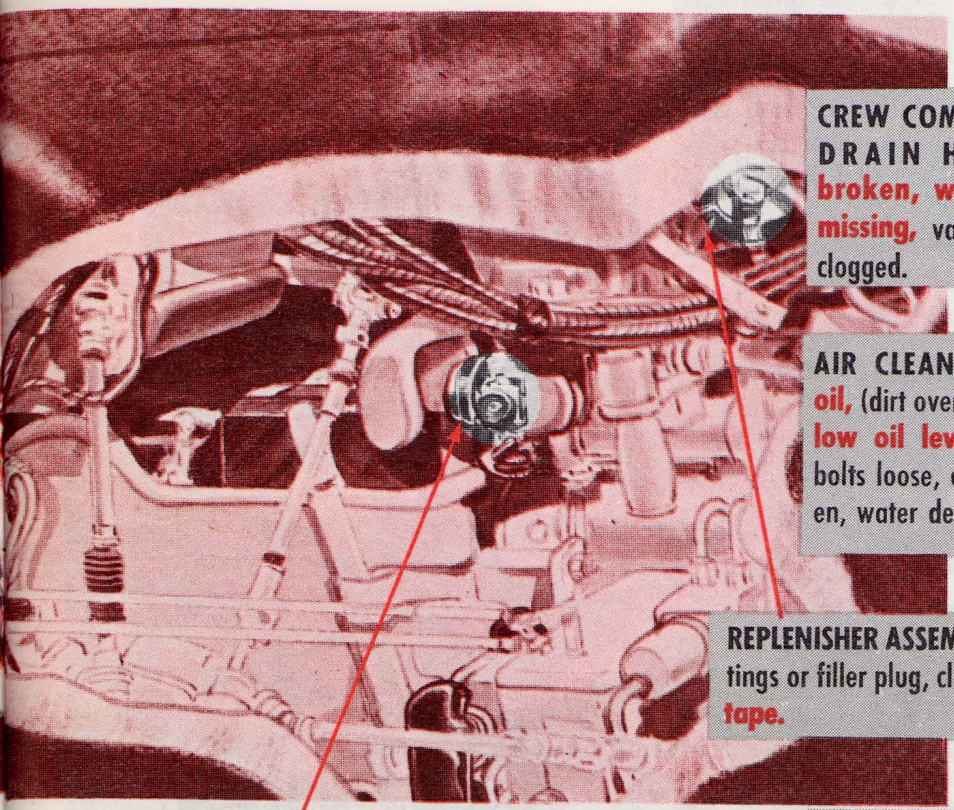
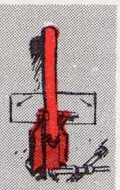
TURRET



CREW COMPARTMENT DRAIN HANDLE—**broken, won't work, missing,** valve stuck or clogged.



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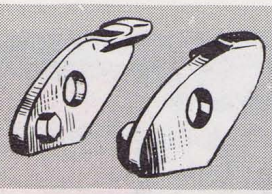
INSIDE TURRET

BATTERIES—caps missing, vents clogged, case cracked, corroded, loose in carrier, electrolyte level not to slots in vent walls, carrier, hold-down bolts, **nuts and clamps missing,** corroded or loose, compartment dirty, terminals loose and terminal connections not greased, grease too thick. (For gravity readings, the hydrometer is in your unit's second echelon tool kit.)

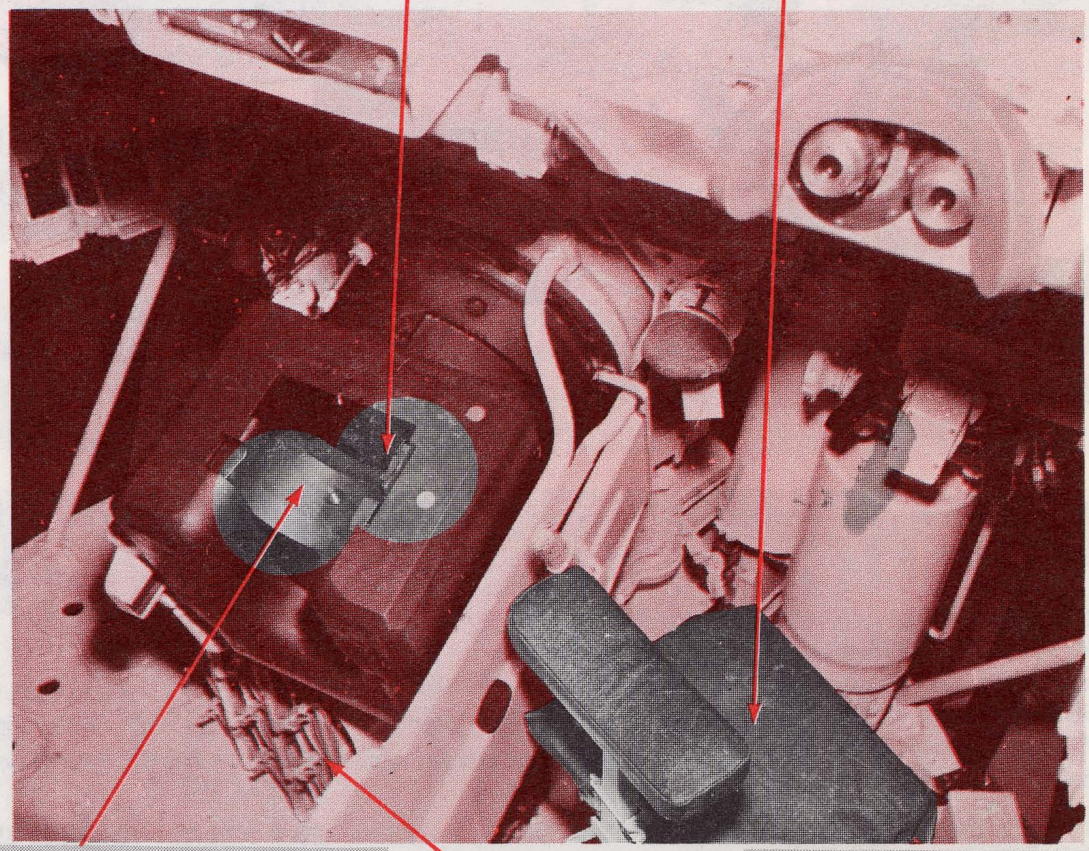
PERSONNEL HEATER— won't work, **leaks.**

HEADLIGHT STOWAGE BRACKET—missing.



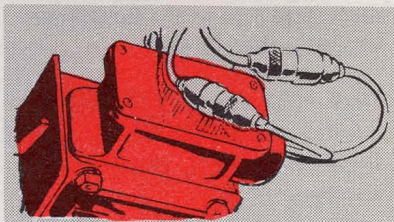
EXTRACTOR ASSEMBLY—worn, burrs, **won't work, broken, worn.**

GUNNER'S, COMMANDER'S AND LOADER'S SEATS—leather frayed or torn, padding torn, seat adjustment controls don't work.



PERCUSSION MECHANISM ASSEMBLY (firing pin)**—broken pin or spring** (remove firing spring retainer), does not operate right.

AMMUNITION RACKS—rubber supports missing, bolts loose, interiors have paint, **locks not working, not lubed or broken.**



GUN ELEVATING INTERFERENCE SWITCH—not adjusted right.

INSIDE TURRET

BATTERIES—**caps missing, vents clogged, case cracked,** corroded, loose in carrier, electrolyte level not to slots in vent walls, carrier, hold-down bolts, **nuts and clamps missing,** corroded or loose, compartment dirty, terminals loose and terminal connections not greased, grease too thick. (For gravity readings, the hydrometer is in your unit's second echelon tool kit.)

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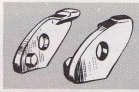

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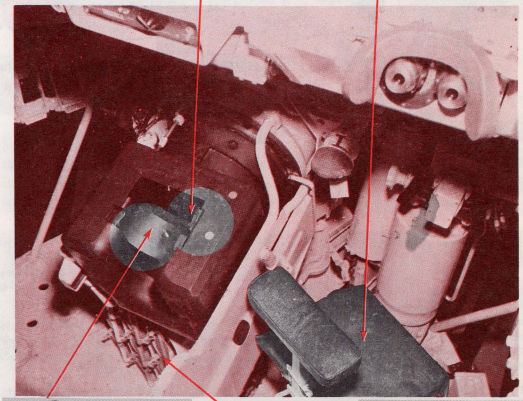

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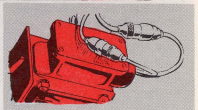


GUN ELEVATING INTERFERENCE SWITCH—**not adjusted right.**

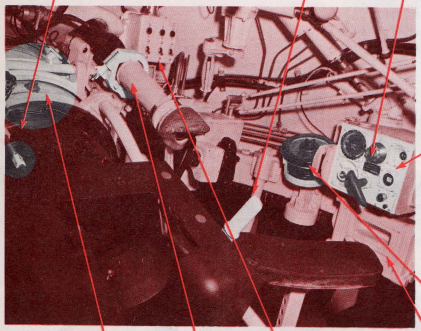
(CONTINUED)

AZIMUTH LOCK—(commander's cupola) **loose,** threads stripped, handle broken.

BREECH OPERATING MECHANISM AND ASSEMBLY AND FIRING PLUNGER ASSEMBLY—**not working,** loose.

SAFETY LEVER SHAFT—**doesn't work, won't hold in either the FIRE and SAFE positions,** Safety ready light won't work, improper bracket adjustment.

GUN AND FIRE CONTROL NAME DATA, CAUTION AND INSTRUCTION PLATES—**not readable,** loose, **missing,** painted over.



BALLISTIC COMPUTER—glass dirty, broken, missing, illegible markings, loose face plate screws, **broken ammunition selector handle,** reset button and light **not working,** circuit breaker switch **torn or broken,** crank handle **broken or not working.**

AZIMUTH INDICATOR—glass broken, bolts loose, **indicator broken, bent,** covers missing, not aligned with gun.

GUNNER'S SWITCH BOX—turret power machine gun and main gun lights not working, indicator lights broken or burned out, and selector switches broken or not working, electrical connections loose.

RECOIL CYLINDER CRADLE—**cracked,** mounting bolts loose, **not fastened securely.**

TELESCOPE MOUNT — bent, boresight knob locking levers don't work.

TURRET TRAVERSING RING LOCK—won't turn, **broken,** not aligned with gun tube, improperly spaced locking teeth and ring gear, threads stripped.

(CONTINUED)

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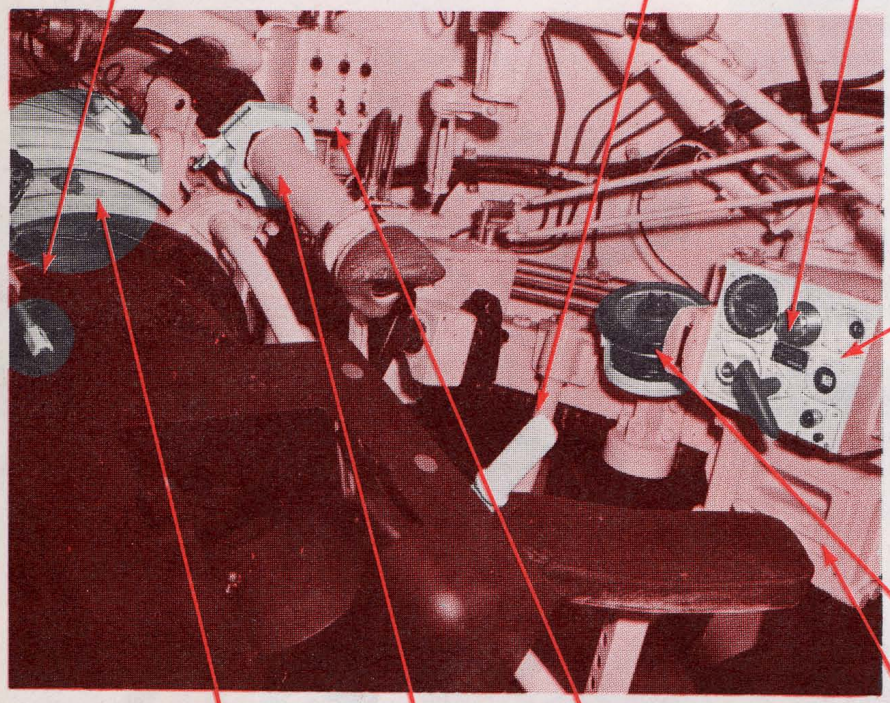

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INSIDE TURRET

(TURN ON TURRET POWER SWITCH AND LOADER'S SAFETY SWITCH. CLEAN AREA AROUND TANK FOR GUN TUBE TEST.)

ELEVATING MECHANISM AIR BLEEDING VALVE ASSEMBLY (2)—**oil leaks,** not color coded.

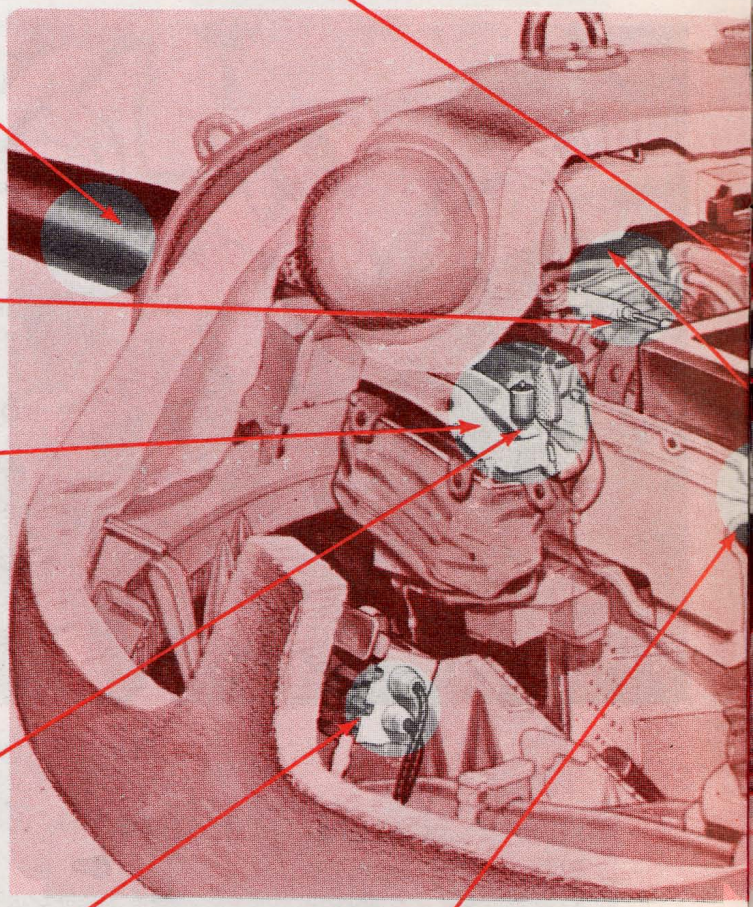
BREECH OPERATING LEVER MOUNTING BRACKET—loose, **broken, dented.**

GUN TUBE—identification marks on breech face illegible, doesn't match markings in Weapons Record Book, damage, land and grooves burred, chamber scored, dirty, rusty, big heat cracks in chamber.

SAFETY LEVER (MANUAL)—broken, stuck, pin bent.

COAXIAL MACHINE GUN MOUNT—**loose, missing bolts, broken clevis pin and chain or parts missing,** locking wires missing or broken.

MACHINE GUN CRADLE ASSEMBLY—**elevating and traversing mechanism won't work, threads stripped** or burred, locking chain and clevis pin assemblies have parts missing or broken, **firing solenoid missing,** disconnected, **burned out.**



BREECHLOCK CLOSING SPRING ASSEMBLY—**spring broken, improper adjustment.**

LOADER'S SAFETY CONTROL BOX—safety light won't work, blower switch defective, bolts loose.

SPARE PARTS AND EQUIPMENT—missing, broken, worn, bent, not stowed properly.

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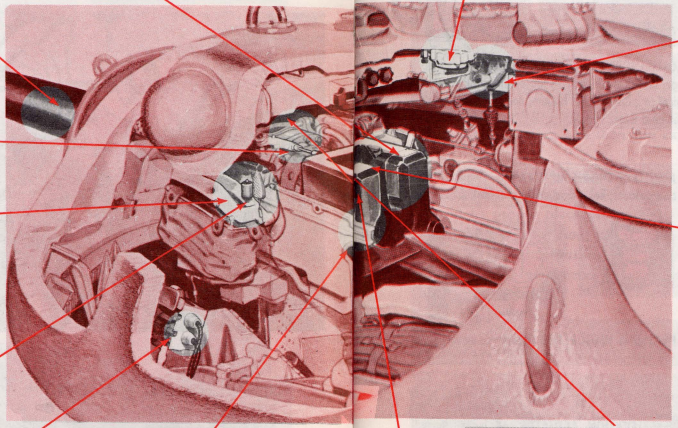
MACHINE GUN CRADLE ASSEMBLY—**elevating and traversing mechanism won't work, threads stripped** or burred, locking chain and clevis pin assemblies have parts missing or broken, **firing solenoid missing,** disconnected, **burned out.**

LOADER'S SAFETY CONTROL BOX—safety light won't work, blower switch defective, bolts loose.



BREECHLOCK CLOSING SPRING ASSEMBLY—**spring broken, improper adjustment.**

SPARE PARTS AND EQUIPMENT—missing, broken, worn, bent, not stowed properly.

(CONTINUED)

ELEVATING CYLINDER—**cracked, damaged, loose nuts and bolts,** leaks oil, boot ripped or missing.

DOME LIGHTS—won't work.

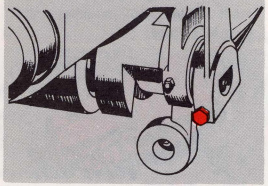
FIRING MECHANISM—manual and automatic cocking device **won't work, broken, jammed** or bent, **hand firing lever and shaft won't work,** bolt loose, not oiled, **electrical firing mechanism won't work,** burned out solenoid or wires, not enough clearance between firing plunger cap and trigger plunger (should be 1/32 inch), .30 cal. m.g. or 90 mm gun relay won't work.

HEADRESTS—too much grease or dirt, ripped, worn down, padding gone, bent, mountings cracked or loose.

ELEVATING HAND PUMP HANDLE—oil leaks, gun doesn't follow movement of handle, handle loose.

BREECH RING AND TUBE LOCK KEY—**missing loose, capscrew missing** or loose.

BREECH OPERATING ASSEMBLY—**broken,** set screw loose or missing.



RANGE FINDER—**knobs missing, jammed or not working,** scratches, **not calibrated right, moisture inside.**

BREECH RING GROUP—identification marking on top of breech ring body doesn't match with record book, leveling plates rough, burred or scratched.

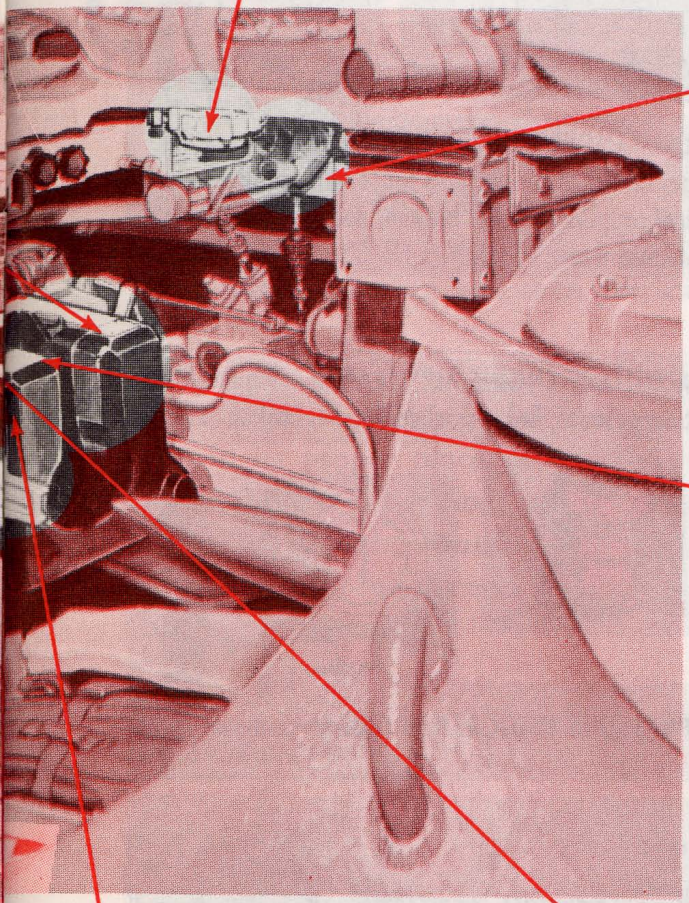
EMERGENCY LIGHT SUPPLY STOWAGE BRACKET AND BINS—loose or broken.

(CONTINUED)

ELEVATING CYLINDER—cracked, damaged, loose nuts and bolts, leaks oil, boot ripped or missing.

FIRING MECHANISM—manual and automatic cocking device won't work, broken, jammed or bent, hand firing lever and shaft won't work, bolt loose, not oiled, electrical firing mechanism won't work, burned out solenoid or wires, not enough clearance between firing plunger cap and trigger plunger (should be 1/32 inch), .30 cal. m.g. or 90 mm gun relay won't work.

DOME LIGHTS—won't work.

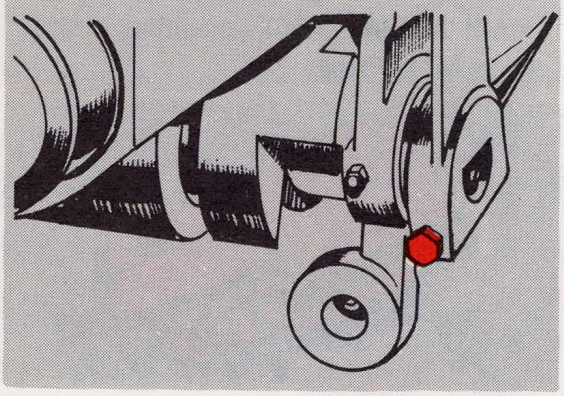


HEADRESTS—too much grease or dirt, ripped, worn down, padding gone, bent, mountings cracked or loose.

ELEVATING HAND PUMP HANDLE—oil leaks, gun doesn't follow movement of handle, handle loose.

BREECH RING AND TUBE LOCK KEY—missing loose, capscrew missing or loose.

BREECH OPERATING ASSEMBLY—broken, set screw loose or missing.

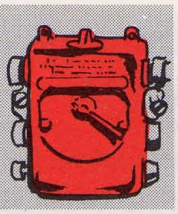


RANGE FINDER—knobs missing, jammed or not working, scratches, not calibrated right, moisture inside.

BREECH RING GROUP—identification marking on top of breech ring body doesn't match with record book, leveling plates rough, burred or scratched.

EMERGENCY LIGHT SUPPLY STOWAGE BRACKET AND BINS—loose or broken.

COMMANDER'S AND GUNNER'S CONTROL BOX—connections loose, bolts loose.



HYDRAULIC PUMPS—(applies to manual and electrical) bolts loose, missing, oil lines leak, crimped or broken, electrical connections loose, broken or frayed wries, trigger springs broken or weak, control handles loose, return springs weak, broken, sticking.

FIRE EXTINGUISHER—missing, seal broken, connections loose, not filled.

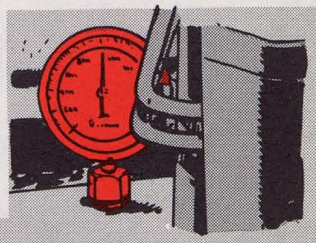
POWER PACK MAIN RESERVOIR—oil level gage loose or missing, oil level low.

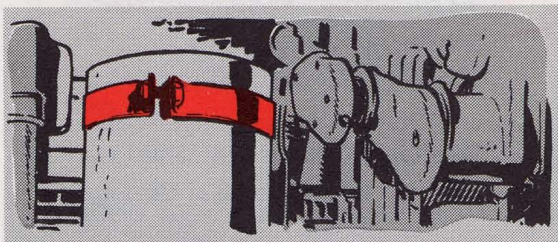
GUNNER'S SEAT—ripped, padding gone, adjusting latch broken, doesn't catch, broken spring.

COMMANDER'S OVERRIDE CONTROL—loose linkage, electrical connections loose, wire broken, electrical coupling bracket broken, deck clearance valve solenoid doesn't work.

OPTICS—dirty, loose connections, condensation inside glass, scratches, broken, loose, missing or stuck dials, markings can't be read.

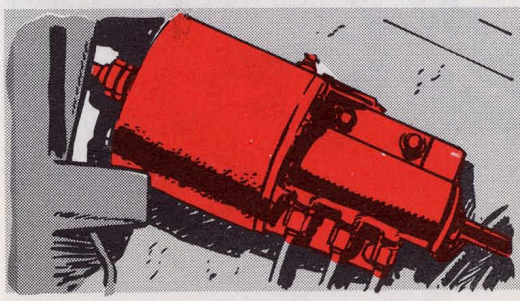
AUXILIARY ENGINE AIR CLEANER—clogged, dirty, clamps loose, hoses cracked, latches broken or loose.





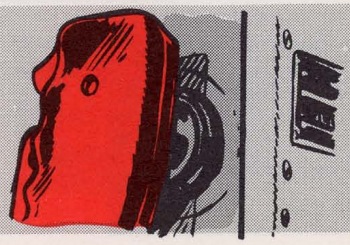
MAIN ACCUMULATOR—mounting straps loose, bolts missing.

PRESSURE INDICATING GAGE—won't work, loose, improper pressure.



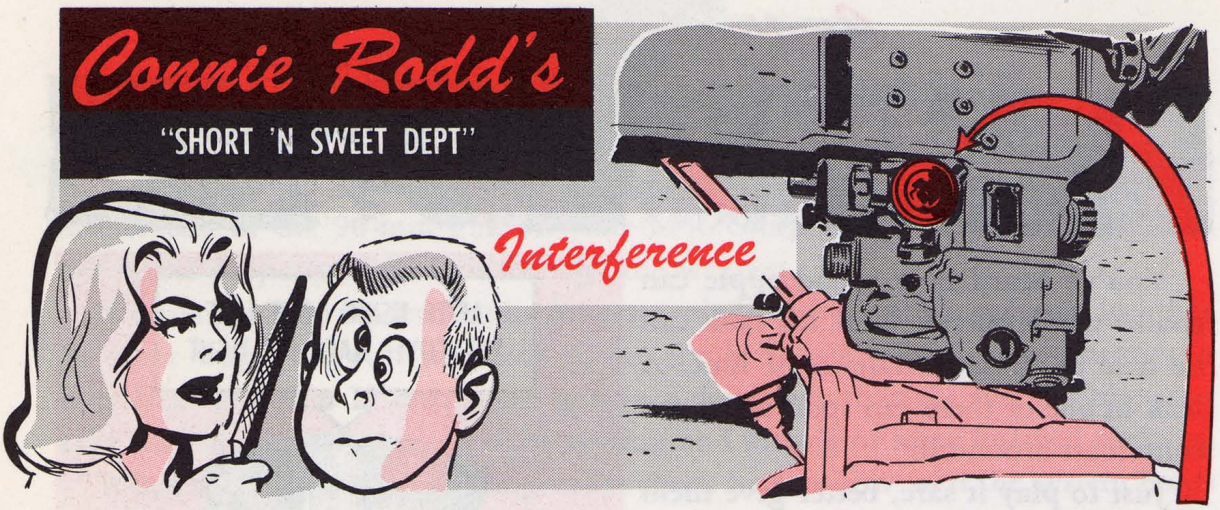
SUPERELEVATION ACTUATOR—oil leaks, loose, shafts bent, bleeder valve assembly leaks, loose, bent, broken, tubing crimped or leaking.

ELECTRICAL TRIGGERS—wire broken, electrical connections loose, return spring broken or weak.



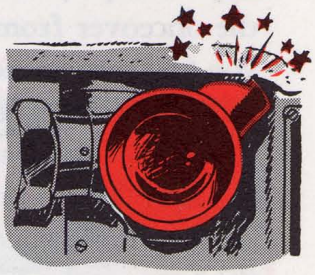
Connie Rodd's

"SHORT 'N SWEET DEPT"



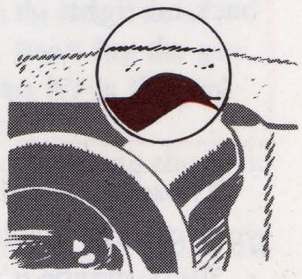
Interference

Blocking may be needed on the football field but, it's just plain interference when it's applied to the M44 infinity sight in your M103A1, 120MM, tanks.



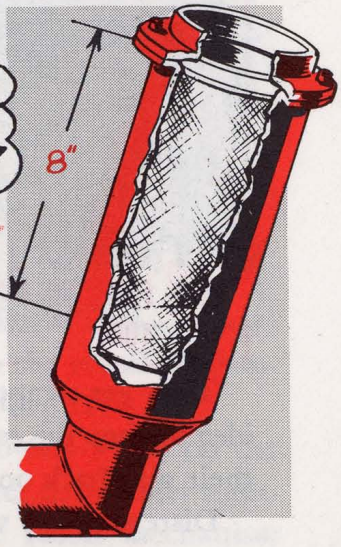
When you go to hook up the sight it hits the M9 periscope drive mount casting and then you can't draw the sight up flush.

You can fix it up by taking a file or grinder and taking enough off the periscope drive mount casting so the sight will slip in its proper place. If you draw the sight up without making room for it first, you'll get a bad reading, or could even break it when pulling it in place.



This type of interference won't win any games, so Kill that block.

Bit of space



Make sure when filling the gas tanks on your M56 Scorpion that you leave space for the gas to expand.

When you don't—the pressure can cause the gas to run out making it dangerous.

If you'll just fill 'em up 'till the gas appears just above the filter screen (about eight inches from top of filler), this gassy deal won't happen no mo.

Caution for containers

You've heard how a bad apple can spoil a whole barrel. Well, the same can be true of those containers of lime. A leak in one of them can spoil all of the containers around it.

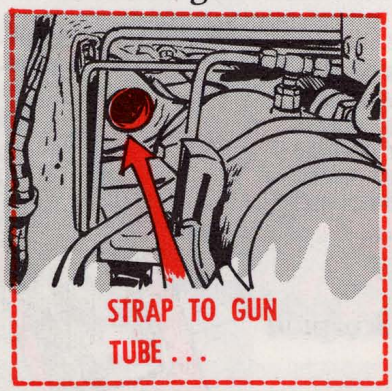
Just to play it safe, better give them the onceover from time to time. When you find a container that's too far gone, pull it out and get rid of it.

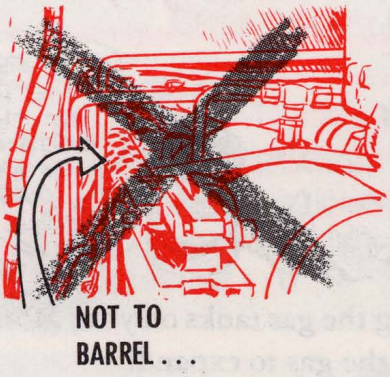
Another thing to keep in mind is that the lime has to be kept in an air tight container. So, once you've used some of the lime, make sure you put the cover back on tight.

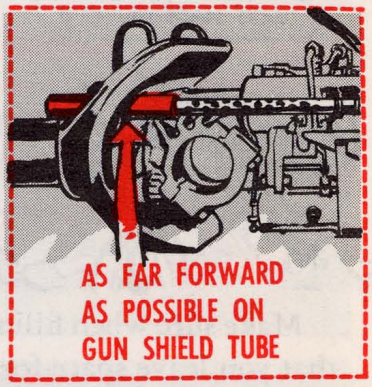
Save those shields

Those nylon splatter shields on your M103A1 tanks getting singed when firing your cal. .30 Machine Gun?

Well, maybe it's because they're getting strapped down to the barrel of the MG 'stead of the gun shield tube in the port hole.







They get strapped as far forward on the tube as possible and it may be a good idea to keep the eagle eye peerin' their way to see they stay there. They could find their way back on the barrel of the MG and get burned up.

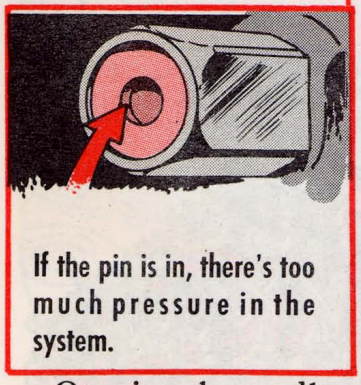
Disregard any well meant info fed you about tieing 'em down to the MG barrel. As you can see this won't do.

Water in scotch, bourbon and rye might mix well, but if it gets into the recoil mechanism of the 90-mm gun on your M56 Scorpion it spells trouble. It may not recoil properly and could damage the weapon.

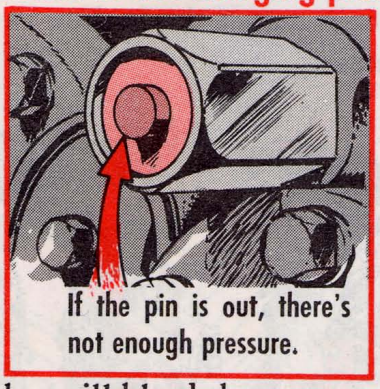
If water gets into the recoil cylinder reservoir from high pressure hoses, weather or other ways, the rust inhibitor in the the hydraulic oil reacts by forming a jelly-like substance. If more water gets into the system than the rust inhibitor can take care of . . . there's going to be rusting and pitting of some finished surfaces.

When this happens . . . the important check here is how well the system holds static pressure. Here's how you can tell:

Look at the position of the charging pressure indicator pin.



If the pin is in, there's too much pressure in the system.

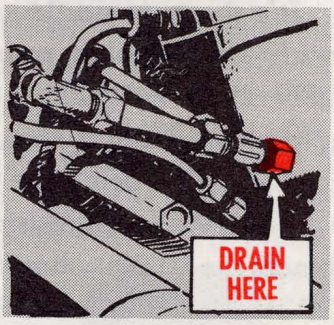


If the pin is out, there's not enough pressure.

All's well if the pin is flush with the face of the housing. **Don't fire the gun unless it's in this position.**

Opening the needle valve will bleed the excess pressure; and by using the hand pump, the pressure can be increased.

If the indicator pin will not stay flush with the housing after you make adjustments, something's wrong. It's more than likely to be an internal oil leak. If this be so, call for your support unit. **Fire the gun only if the indicator pin stays flush with the face of the housing.**



Normal changes of temperature also will cause the indicator pin to move 'cause of the expansion or contraction of oil. This kind of movement will be very slow... maybe taking a few hours. This can be fixed up by either bleeding or hand pumping. But if the pin moves out of position a few minutes after that, dial for your support unit.

If you got a suspicioning that water may have gotten into the recoil mechanism cylinder, drain and refill with fresh OHC (6083 A or B Type I).

For a good waterproof seal, put an "O" ring, FSN 5330-684-3419, on the recoil cylinder dipstick plug. Also, keep the plug a little tighter than finger tight.

Remember — keeping those water hoses away from the recoil mechanism cylinder will keep your M56 SP gun in rootin', tootin' and shootin' shape.

A handy manual

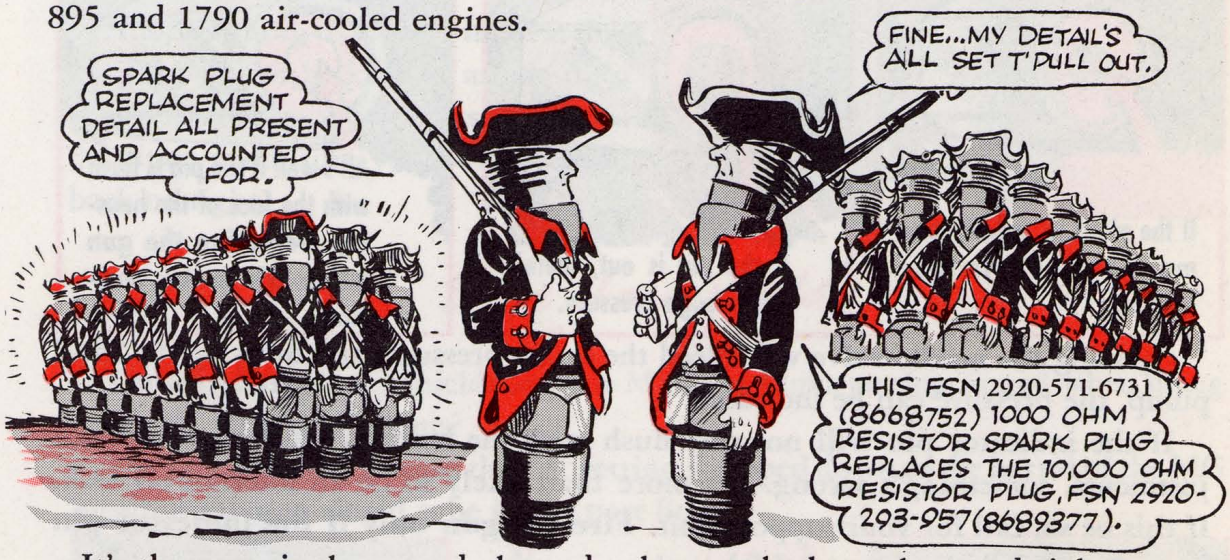
Have you seen TM 3-500, "Chemical Corps Equipment Data Sheets," dated November 1959?

This is a dandy handy manual to have around. You have a picture of each item of Chemical Corps equipment. You have a paragraph telling what it's used for, and a paragraph describing the item.

You can tell who uses the item, what its federal stock number is, what pubs apply to the piece of equipment, plus other info that's good to have at your fingertips.

Plugging the problem

Here's a spark plug that'll help reduce the fouling you've been havin' in those 895 and 1790 air-cooled engines.

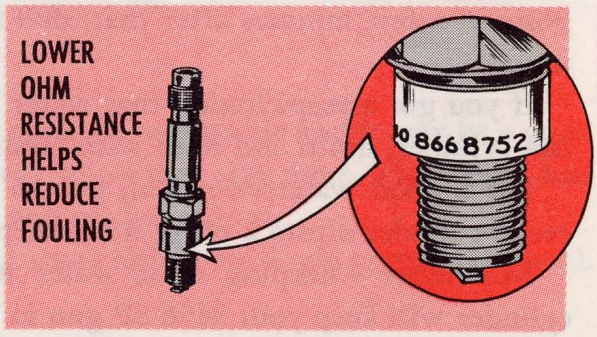


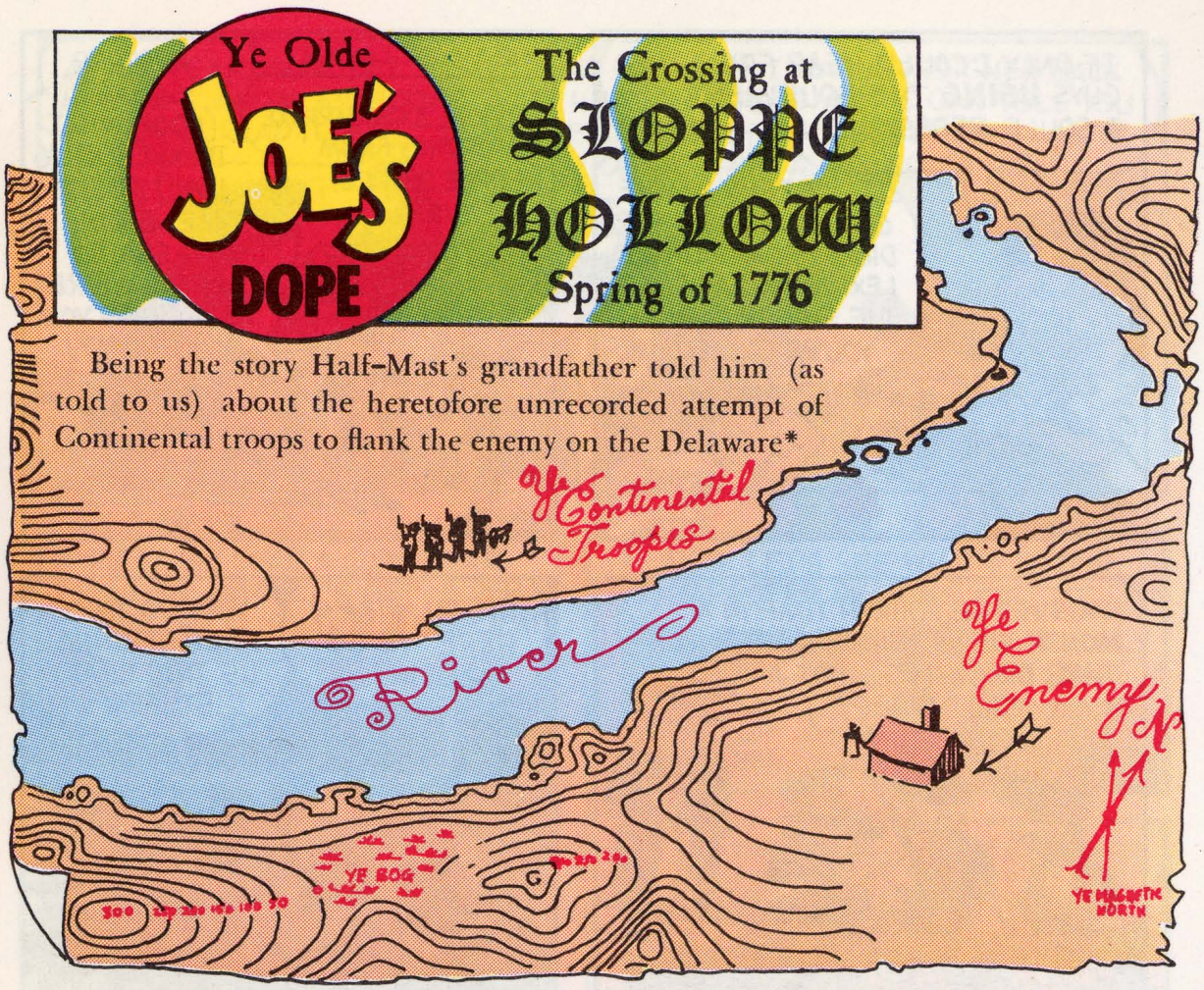
It's the new single-ground electrode with a 1,000-ohm resistor spark plug FSN 2920-571-6731 (8668752). The gap setting on it is from .016 to .021 of an inch, .018 being the ideal setting.

This 1000-ohm resistor spark plug replaces the 10,000-ohm resistor plug FSN 2920-293-9737 (8689377). It was found that the higher ohm resistance had a lot to do with the fouling of the plugs —'specially while at idle.

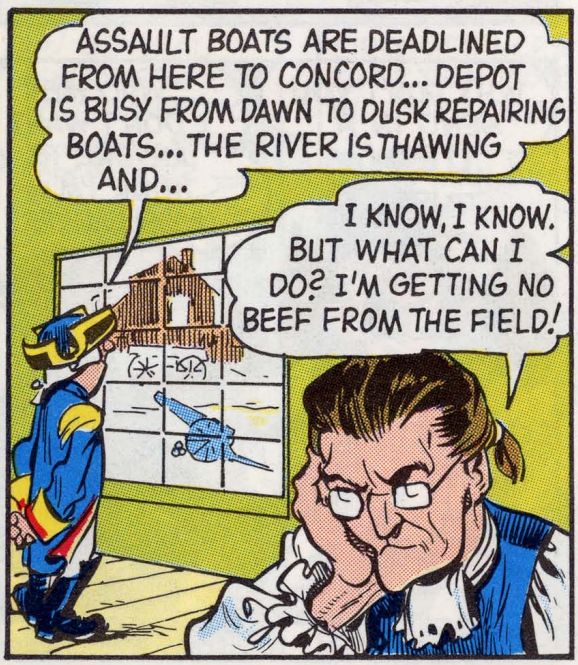
One thing you've gotta watch when using the 1,000-ohm resistor plug, though. All ignition harness connections have to be kept clean and tight to get good radio static suppression.

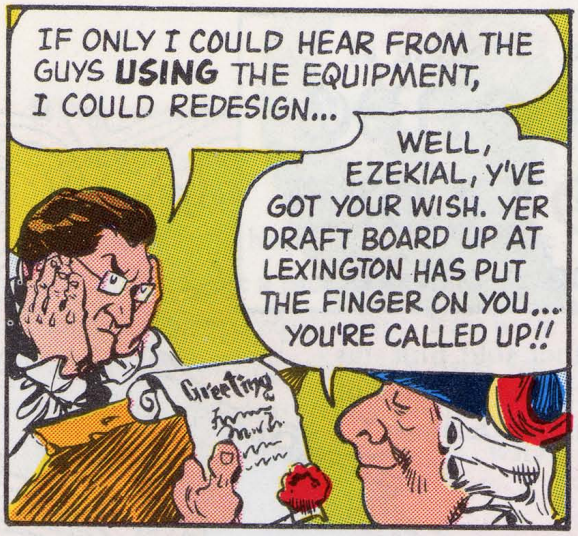
Whenever it is humanly possible keep the same type plugs in those engines... you'll get better engine performance all around.

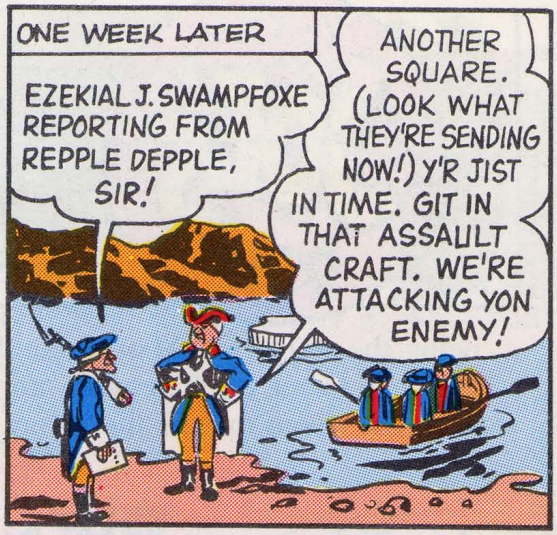




*Note: This crossing was later accomplished by General Washington down the Delaware, with considerable success.



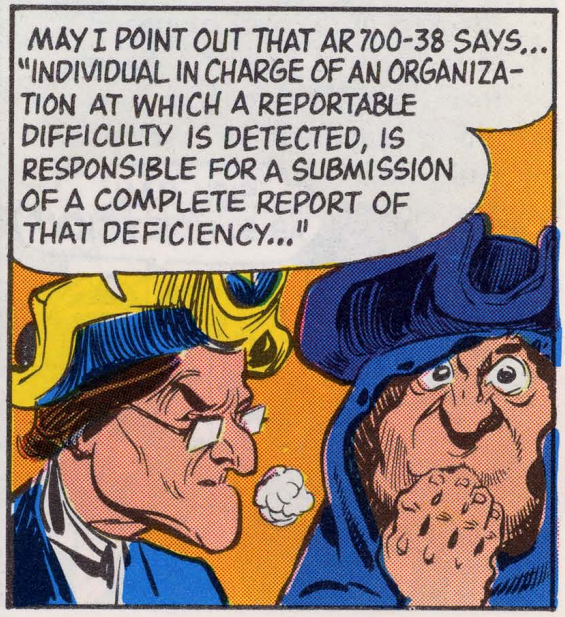

IF ONLY I COULD HEAR FROM THE GUYS **USING** THE EQUIPMENT, I COULD REDESIGN...
WELL, EZEKIAL, Y'VE GOT YOUR WISH. YER DRAFT BOARD UP AT LEXINGTON HAS PUT THE FINGER ON YOU... YOU'RE CALLED UP!!
Greetings

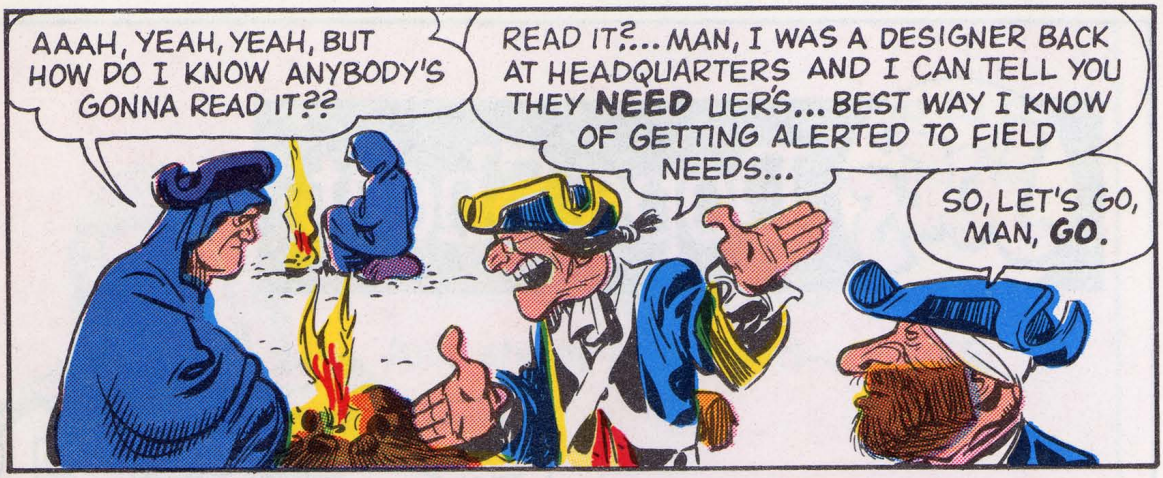

ONE WEEK LATER
EZEKIAL J. SWAMPFOXE REPORTING FROM REPPLE DEPPLE, SIR!
ANOTHER SQUARE. (LOOK WHAT THEY'RE SENDING NOW!) Y'R JIST IN TIME. GIT IN THAT ASSAULT CRAFT. WE'RE ATTACKING YON ENEMY!

THIS IS THE FOURTH TIME IN A MONTH WE'VE TRIED... LOST 3 MEN THRU DROWNING... NOT A SHOT FIRED!
US 878

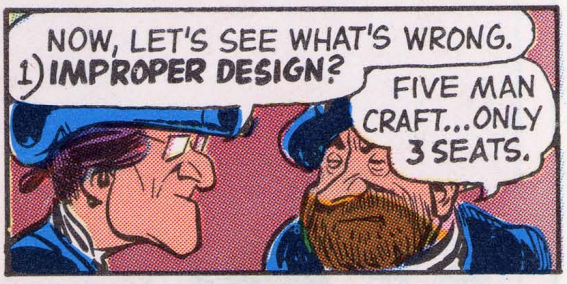
UH, OH, *!?★+! HERE WE GO AGAIN!
WHY DO THEY KEEP SENDING US THIS LEAKY STUFF?

WHY DON'T **YOU** SEND IN A **UER!**
...WHO, ME? I DON'T WANT ANYONE TO THINK I'M A "TROUBLEMAKER."


MAY I POINT OUT THAT AR 700-38 SAYS... "INDIVIDUAL IN CHARGE OF AN ORGANIZATION AT WHICH A REPORTABLE DIFFICULTY IS DETECTED, IS RESPONSIBLE FOR A SUBMISSION OF A COMPLETE REPORT OF THAT DEFICIENCY..."


AAAH, YEAH, YEAH, BUT HOW DO I KNOW ANYBODY'S GONNA READ IT??
READ IT?... MAN, I WAS A DESIGNER BACK AT HEADQUARTERS AND I CAN TELL YOU THEY NEED UER'S... BEST WAY I KNOW OF GETTING ALERTED TO FIELD NEEDS...
SO, LET'S GO, MAN, GO.

FIRST, WE GRAB A COPY OF AR 700-38 AND LET'S GET UNDER WAY... WE'LL DO THIS IN TRIPLICATE.
WHO ARE YOU?
I'M THE CARBON COPY.

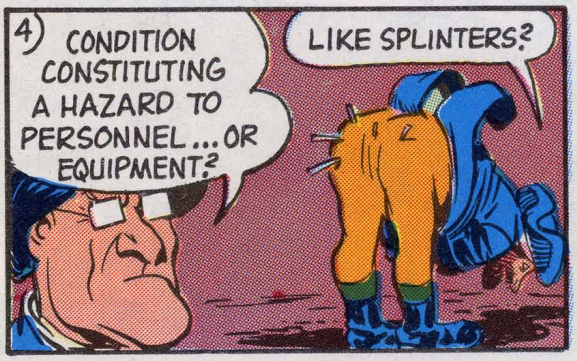

NOW, LET'S SEE WHAT'S WRONG.
1) IMPROPER DESIGN?
FIVE MAN CRAFT... ONLY 3 SEATS.

2) WORKMANSHIP FAULTY??
YEP... KEEPS COMIN' APART AT THE JOINTS!

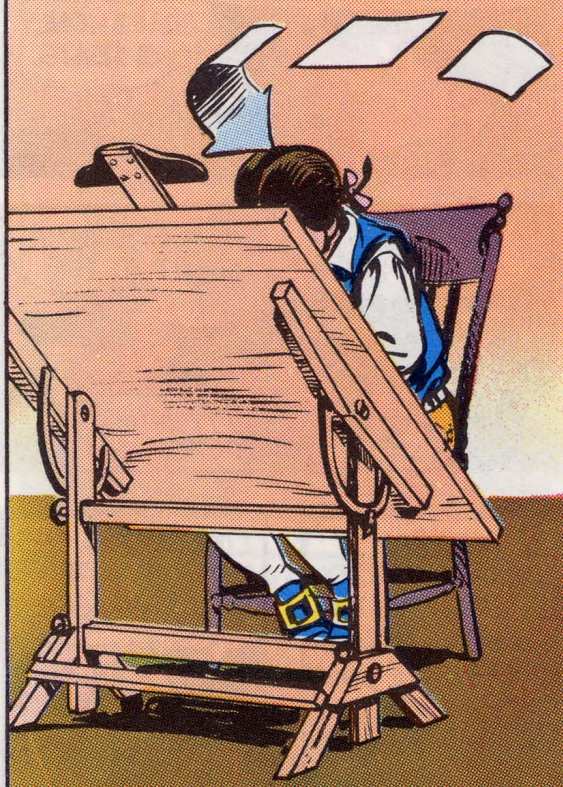
3) EXCESSIVE WEAR AND DETERIORATION FOR THE PERIOD OF TIME AND CONDITIONS UNDER WHICH THE ITEM WAS IN USE OR ON HAND??
NO!... BUT, THEY DON'T LAST LONG...!

5) GENERAL UNSATISFACTORY OPERATION (ETC.)...
...DURING NORMAL OPERATION?
@★!!2+ ★★田!米

CIRCUMSTANCES OTHER THAN THOSE INDICATED ABOVE??
MAN, AIN'T THEY ENOUGH?


4) CONDITION CONSTITUTING A HAZARD TO PERSONNEL... OR EQUIPMENT?
LIKE SPLINTERS?

JOE'S Dope Sheet



UNSATISFACTORY EQUIPMENT REPORT
(AR 700-38)

DATE OF REPORT: 1 June 60

REPORTS CONTROL SYMBOL CSOLD-347(R3)

TO:
Chief of Ordnance
Dept of the Army
Washington 25, D. C.

FROM: (Reporting Activity and Location)
Headquarters
6076 Tank Battalion
Fort Dasp, Ky.

ACTIVITY REPORT NUMBER: 60-7

IDENTIFICATION OF DEFECTIVE ITEM OR PART

1. NOMENCLATURE: Step, Platform
2. PART OR STOCK NUMBER: Unknown
3. SPECIFICATION NUMBER: N/A
4. MANUFACTURER: Austin-Western Co
5. MODEL: N/A
6. SERIAL, LOT OR BATCH NR: N/A

ACQUISITION

7. CONTRACT NUMBER: N/A
8. DATE OF DELIVERY TO GOVT: N/A
9. DEPOT SUPPLYING ITEM: N/A
10. REQUISITION/SHIPPING ORDER NR: N/A

EQUIPMENT ON WHICH INSTALLED

11. NOMENCLATURE: Truck, Medium Wrecker, 5-ton, 6x6 M62
12. REGISTRATION NUMBER: N/A
13. MANUFACTURER: Austin-Western Co
14. MODEL: M62
15. SERIAL NUMBER: N/A

USAGE (Check one) ☐ MILEAGE ☐ HOURS RUN ☐ ROUNDS FIRED ☐ MONTHS IN USE OR ☐ ON HAND ☐ JUMPS OR DROPS

16. TOTAL	17. SINCE OVERHAUL (Rebuild)	18. ACTIVITY PERFORMING OVERHAUL	19. DATE OF OVERHAUL
N/A	N/A	N/A	N/A

DEFICIENCY

20. TOTAL QUANTITY ON HAND	21. QUA...	22. NR OF PREVIOUS FAILURES	23. DATE OF FIRST FAILURE
1	1	N/A	N/A

24. DETAILS (Description, cause, action taken, recommendations, disposition of items, inclosures and remarks.)

Both the running boards and the step above the ...ker get very slippery when it's rainy and damp like it ...ing from the boom operations cab, especially wearing Army boots, a man has to step down to the tool compartment lid, then down to the running board. It would help if the manufacturer would put rubber on top of these steps—or some of those non-slip tread pads they use on ships' main decks. I've seen several minor injuries when men slipped on these steps, and someone could be seriously injured.

SERVICE REPORT NR

NOTE: Do not use reverse side. Head extra sheets with Reporting Activity, Location and Activity Report Number.

REPORT SUBMITTED BY

TYPED NAME, GRADE OR TITLE: John B. Hewing, Capt, Armor, Bn Motor Officer

SIGNATURE: John B. Hewing

DA FORM 2028 468 REPLACES PREVIOUS EDITIONS OF THIS FORM AND DD FORM 6R.

WE HAVE THE WORLD'S BEST EQ

JOE'S Dope Sheet
When equipment is not up to par,
Remember—you're not very far
From the men at the rear
Who design all your gear—
Just shoot in a filled-out UER.
UNSATISFACTORY EQUIPMENT REPORT
(AR 700-38)
DATE OF REPORT
1 June 60
REPORTS CONTROL SYMBOL
TO:
Chief of Ordnance
Dept of the Army
Washington 25, D. C.
FROM: (Reporting Activity and Location)
Headquarters
6076 Tank Battalion
ACTIVITY REPORT NUMBER
IDENTIFICATION OF DEFECTIVE ITEM OR PART
1. NOMENCLATURE
Step, Platform
2. PART OR STOCK NUMBER
3. SPECIFICATION NUMBER
N/A
4. MANUFACTURER
Austin-Western Co
5. MODEL
N/A
6. SERIAL, LOT OR BATCH NR
N/A
ACQUISITION
7. CONTRACT NUMBER
N/A
8. DATE OF DELIVERY TO GOVT
N/A
9. DEPOT SUPPLYING ITEM
N/A
10. REQUISITION/SHIPPING ORDER NR
N/A
EQUIPMENT ON WHICH INSTALLED
11. NOMENCLATURE
Truck, Medium Wrecker, 5-ton, 6x6 M62
12. REGISTRATION NUMBER
N/A
13. MANUFACTURER
Austin-Western Co
14. MODEL
M62
15. SERIAL NUMBER
N/A
USAGE (Check one) MILEAGE HOURS RUN ROUNDS FIRED MONTHS IN USE OR ON HAND JUMPS OR DROPS
16. TOTAL
N/A
17. SINCE OVERHAUL (Rebuild)
N/A
18. ACTIVITY PERFORMING OVERHAUL
N/A
19. DATE OF OVERHAUL
N/A
DEFICIENCY
20. TOTAL QUANTITY ON HAND
1
1
22. NR OF PREVIOUS FAILURES
N/A
23. DATE OF FIRST FAILURE
N/A
24. DETAILS (Description, cause, action taken, recommendations, disposition of items, inclosures and remarks.)
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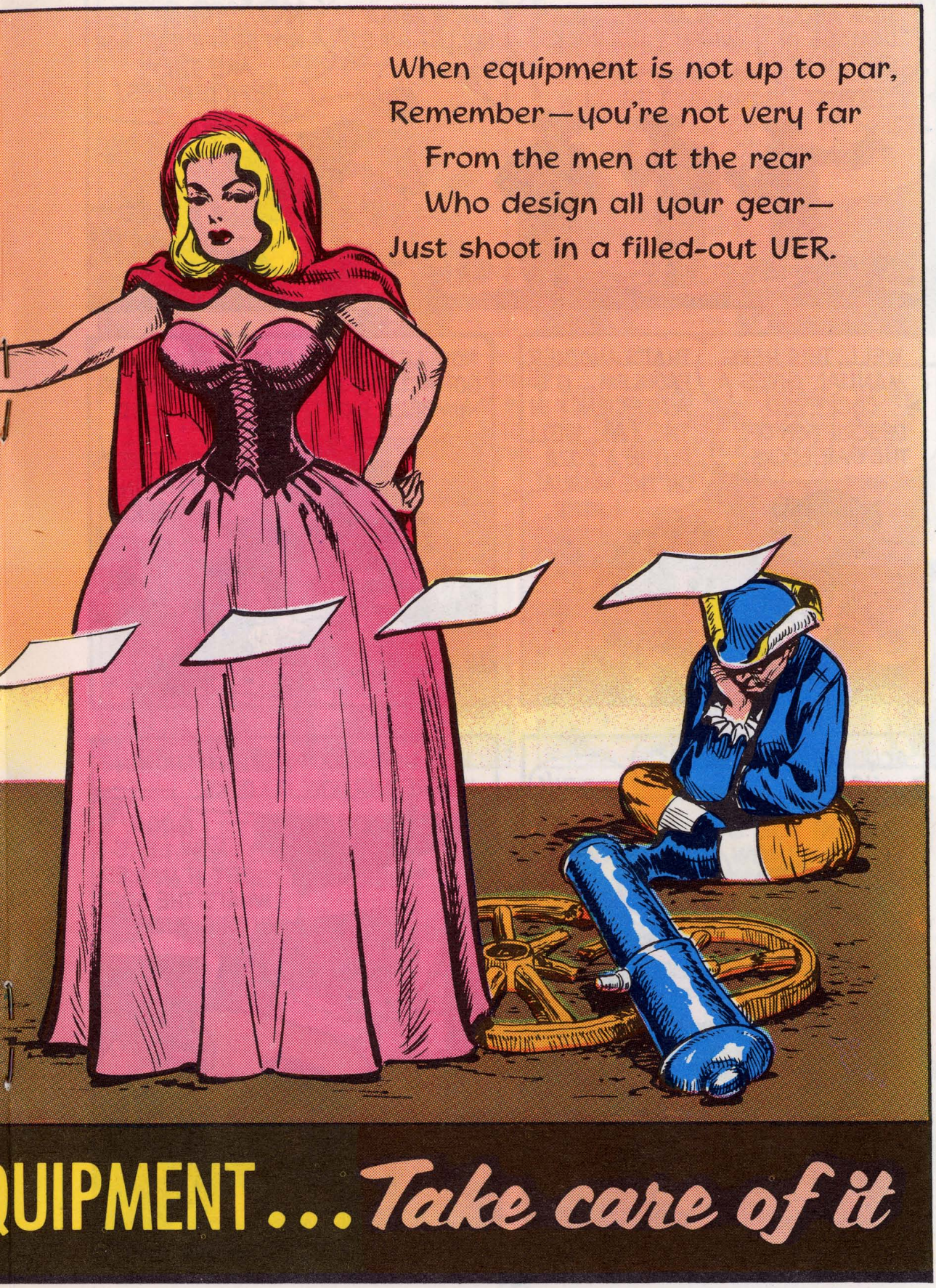
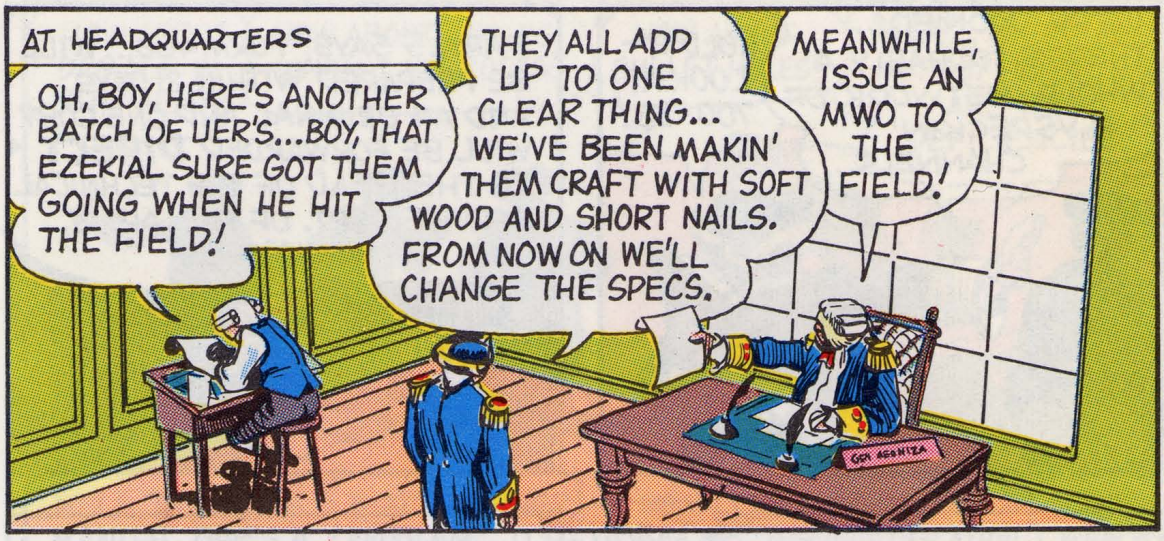
REPORT SUBMITTED BY
TYPED NAME, GRADE OR TITLE
John B. Hewing
Capt, Armor
Bn Motor Officer
SIGNATURE
DA FORM 468
WE HAVE THE WORLD'S BEST EQUIPMENT... Take care of it


When equipment is not up to par,
Remember—you're not very far
From the men at the rear
Who design all your gear—
Just shoot in a filled-out UER.
QUIPMENT... Take care of it

HOW ABOUT DAMAGE IN SHIPMENT?
HOW ABOUT... HOLES WHEN I HIT ROCKS?
HOW ABOUT BULLET HOLES?
NO!... THESE ARE NOT SUFFICIENT, NOR ARE THEY DEFICIENCIES!
WELL, THIS HERE MANUAL GIVES A COCKEYED DESCRIPTION OF THE OAR LOCKS...
THAT'S ANOTHER PROBLEM... IT'S A DEFICIENCY IN THE TM... WE'LL PUT IN A 2028 ON THE MANUAL LATER.
NOW, LET'S CHECK IT OUT. GOT ALL THE IDENTIFICATION NUMBERS RIGHT?
YEP, FSN'S, AND THE MANUFACTURER'S IDENTIFYING NUMBERS!
ACQUISITION NUMBERS? ...USAGE?...
CHECK!!
NOW HOW ABOUT A SKETCH SHOWING WHERE AND HOW IT LOOKS!
GOOD! NOW LET'S GET IT MAILED. WHAT'S THE SOP IN THIS OUTFIT?
Sinkshere

WE'RE DOOMED... THERE'S PROBABLY A WHOLE NETWORK OF FLYSPECKIN' CHANNELS...
HOLD IT— LOOK AT 700-38!
PARA.5 SAYS, "FORM 468... WILL BE PREPARED WITHIN 21 DAYS AND AN ORIGINAL AND ONE COPY WILL BE FORWARDED DIRECT TO THE HEAD OF THE TECHNICAL SERVICE, DEPT. OF THE ARMY, WASH., D.C.
NOW, JUST AMINIT— YOU LEFT OUT A COMMA AND YOUR SYNTAX IS POOR...
I JUST CAME IN HERE TO BORROW AN ENVELOPE.
COMPANY CLERK
THIS IS NOT A LITERARY WORK! NOBODY CARES ABOUT YOUR WRITING STYLE... JUST SO'S THEY CAN READ IT!!
NOW, LET'S PULL THE VEHICLES OUTTA SERVICE UNTIL WE GET NEW ONES.
SAY, I BEEN WORKING ON A SUPER SYSTEM FOR CHANNELIZING U.E.R'S.
...WE GOT ENOUGH TO WORRY ABOUT GETTING THEM UER'S IN. LET THE BRASS DO THE ADMINISTRATIN'.



The following month, equipped with new assault boats built on the improved design the unit stormed across the river . . . but they never made it . . . sank midstream . . . (wrong size boat!!)

*MORAL: Check every number carefully before submitting a **UER.**

BURNING THE POINT

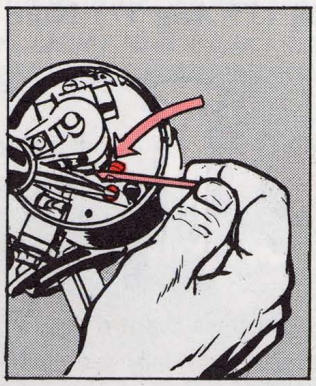
Dear Half-Mast,

We had a commercial type truck in our motor pool that really had us baffled. The critter'd keep burning out distributor points as fast as they could be put in it. Sometimes they'd last less'n 50 miles. Why?

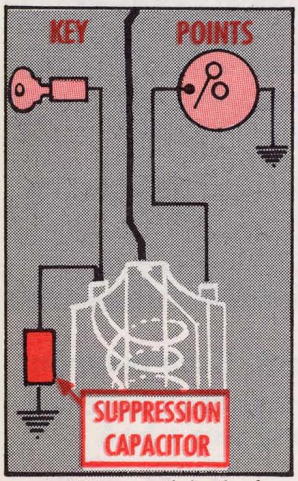
SFC F. L.

Dear SFC F. L.,

There are several causes for points burning out like that. Here's a list of 'em.



1. Improper gapping. (Set gap accord to TM with feeler gage).
2. Worn cams from lack of lube. (Closes the gap and points burn).
3. Regulator set too high. (Have support reset 'em).
4. Dirty points. (Oil from excessive crankcase pressure etc. left on points). Check for bad seal at distributor base.
5. Poor alinement of points. (Should have been flush with each other).



6. Missing resistor in the primary circuit. (Should a coil require the resistor then it'll be hooked up in series with the primary circuit).
7. Wrong hook-up when the radio suppression capacitor is used. Attach only to the ignition switch terminal side of the coil primary winding and NOT to the point terminal side of the coil primary winding. Doing it wrong will put the suppression capacitor in parallel with the ignition capacitor and connected across the points.
8. Bad or improperly connected point capacitor. Excessive resistance of the point capacitor and loose or bad connection.
9. Wrong point capacitor.

Hope this is just the medicine you need to cure your point ills.

EASY, GREASY!

Dear Half-Mast

I hear where a lot of the guys that drive the 5-ton wrecker trucks M62 and M246 are having trouble with water getting around the pivot post and freezing.

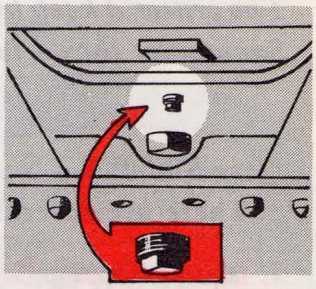
In our outfit we have taken to removing the drain plug and leaving it off all winter. Any water that gets around the pivot post runs out before it can freeze.

What do you think of that for a simple fix?

SFC B. V. H.

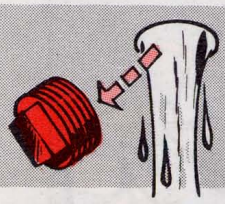
Dear Sergeant B. V. H.,

Removing the pivot post assembly drain plug and leaving it off all winter is not good. The plug could be misplaced or you could forget to put it back before summer operation.



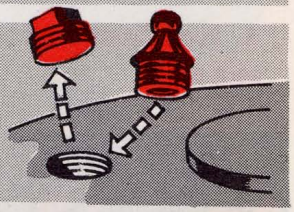
In summer the grease becomes thin and if the plug is not in place, it'll run out the plug opening. This would cause the pivot post assembly to fail due to lack of lube.

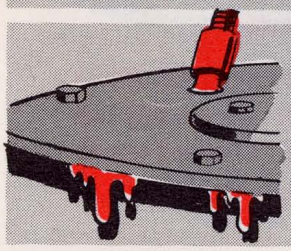
The best method to keep water out of your pivot post assembly is by greasing it every week with GAA like LO 9-8028 (15 Aug 57) Note 15 says.



But before you start filling it with grease, remove the drain plug and spin the pivot post to let the trapped water out.

Then, you trade the two pipe plugs on each side of the pivot post gear shield for lubrication fittings and pump lube into the pivot post assembly until water stops coming out of the drain plug hole.





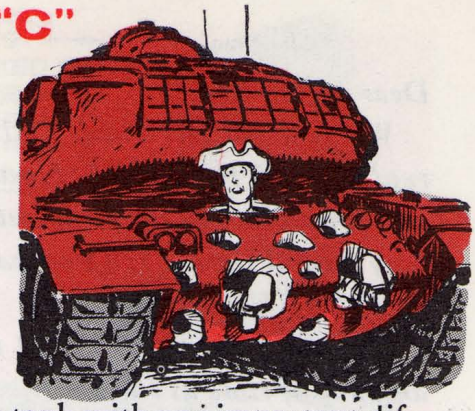
You then replace the drain plug and keep squirting in lubricant until it starts to come out from under the pivot post gear shield.

You then take off the lube fittings and put the pipe plugs back. Keep pumping grease into that spot every week. Keep it full of grease so water can't have any room to collect.

This should solve the problem.

Half-Mast

SO THAT'S THE "C"



Dear Half-Mast,

Looking over the M48-series medium tank publications I keep noticing references to the M48C. Nobody around here seems to know just what an M48C tank is.

Capt. J. D. A.

Dear Captain J. D. A.,

The M48C is the same vehicle as the M48 medium tank with one important difference—it has a non-ballistic hull. This non-ballistic deal is on account of a defect in the make-up of the hull. It means that the hull won't give the normal armor protection against enemy fire.

There are not many of these C-type tanks, and they're all being used strictly for training. TB 9-718B-2 (17 Sep 54) gives more dope on identifying these non-ballistic hulls.

Half-Mast

WHAT IS IT?

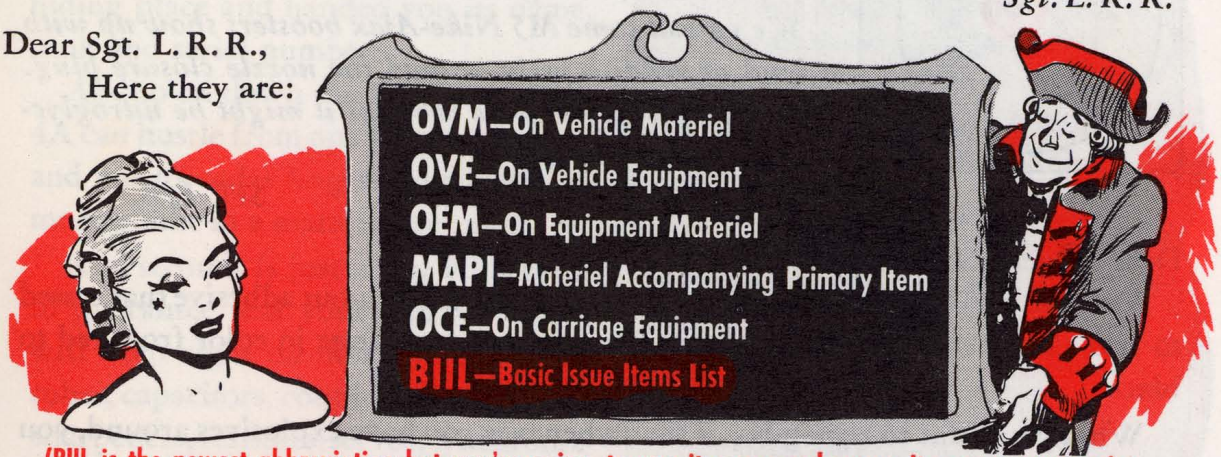
Dear Half-Mast,

I think everyone knows that OVM stands for On Vehicle Materiel and OVE is for On Vehicle Equipment, but I've seen some new letters lately that I can't figure out. Here they are: OEM, MAPI, and OCE. What do they mean?

Sgt. L. R. R.

Dear Sgt. L. R. R.,

Here they are:



(BIIL is the newest abbreviation but you're going to see it more and more. It means accessories, attachments, component assemblies, and the numbers of each, which make up the end item of equipment and the first echelon maintenance accessories, tools, supplies, and spare assemblies and repair parts that go with the piece of equipment. It's your piece of equipment and everything you the user get with it including OVM, running spares. This term comes from change 4 to AR 310-3.)

And a rose is a rose is a rose!

Half-Mast

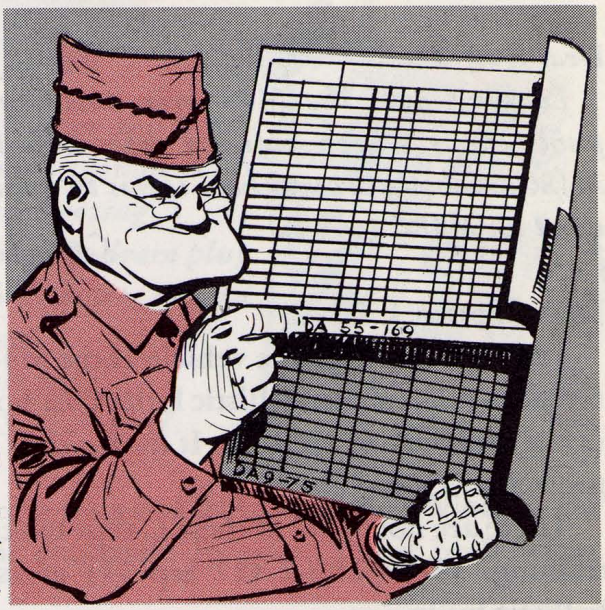
IT'S THE SAME

Dear Half-Mast,

We just got DA Form 55-169 which replaces DA Form 9-75. Now here are my questions—do we fill it out the same way we did the 9-75? (You had an article in PS 57 on the 9-75).

Do we keep the 55-169 the same amount of time as the 9-75?

SFC J. D. W.



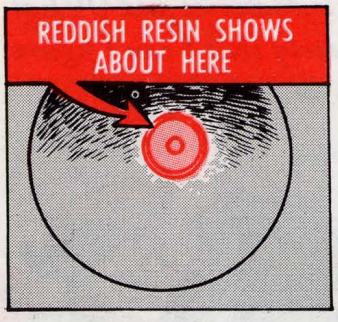
Dear SFC J. D. W.,

The only difference between the old DA Form 9-75, which is now obsolete, and the new DA Form 55-169 is that the column headings have been relocated with the exception of "Unit or Section" heading which has been done away with.

The instructions that were published for the 9-75 with reference as to how to use it, prepare it, and dispose of it are the same for the new 55-169. So if you have a question pull out your PS 57 and take a look at pages 21 through 28.

Half-Mast

NO NITRO



Dear Half-Mast,

How about putting our minds at ease?

We've had some M5 Nike-Ajax boosters show up with a kind of reddish resin around the nozzle closure plug. One cheerful guy said he thought it might be nitroglycerin. What do you say?

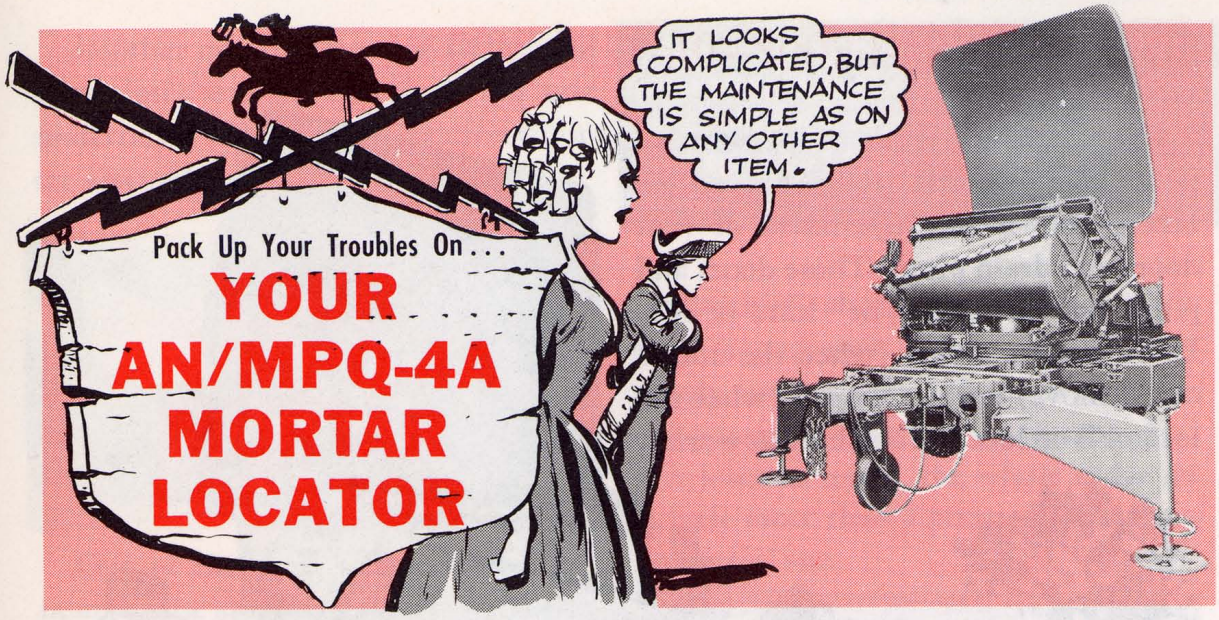
SFC L. B.

Dear Sergeant L. B.,

You don't have to run for cover. The stuff is excess flash-out adhesive that's used to seal the nozzle closure in place. The adhesive can range in color from red to black.

What you want to remember is that whenever you have explosives around, you have to be on the lookout for stray material, like leakage, that could make things a little hairy. When you run into something like this, call your support unit. They'll want to test the stuff to see what it's made of and then send the info on to the Army Rocket and Guided Missile Agency, Redstone Arsenal, Alabama, ATTN: ORDXR-FMN.

Half-Mast



Pack Up Your Troubles On . . .

YOUR AN/MPQ-4A MORTAR LOCATOR

Seek and find.

A simple enough order.

And one that your AN/MPQ-4A carries out with a smile on its electronic face. The second an enemy mortar or other high angle weapon spits out its first shell—the MPQ-4A will seek it.

Before a second shot can be fired, your mortar locator has found the enemy's hiding place and handed you its name, rank and serial number.

And so on down the line. The MPQ-4A can hustle from one place to another and put its radar fingers on any enemy mortar tube in a matter of seconds.

And seconds is just about all it takes to guarantee that your mortar locator will keep right on doing just that. Its tubes, capacitors, couplers, range strobe sharpeners, resistors, servos, synchronizers, and all the rest are packed into a rugged trailer-mounted package that will keep up with the fastest-moving outfit.

All it asks from you is some simple preventive maintenance. The bread-and-butter treatment that tastes best to any piece of equipment.

It's mostly the practice of do's and don't's that does the trick. Best way to look at the MPQ-4A, then, is by Groups . . .

ANTENNA GROUP—
OA-1258/MPQ-4A

Antenna AS-835/MPQ-4A
Antenna Pedestal AB-486/MPQ-4A
Antenna Reflector AT-634/MPQ-4A

RECEIVER-TRANSMITTER GROUP—
OA-1257/MPQ-4A

Control-Monitor C-2102/MPQ-4A
Power Supply PP-1588/MPQ-4A
Transmitter Compartment

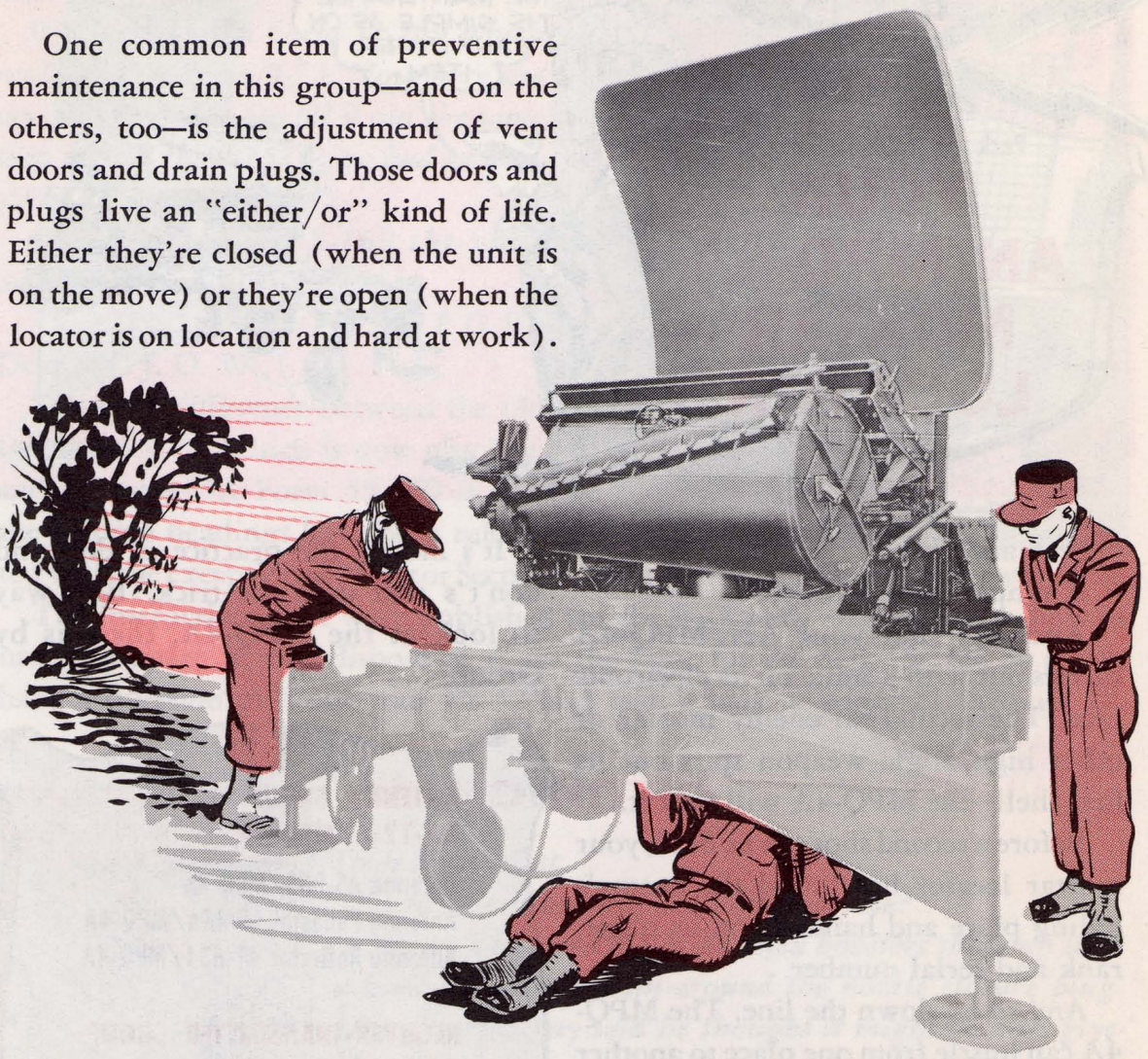
CONTROL-INDICATOR GROUP—
OA-1256/MPQ-4A

Azimuth and Range Indicator
IP-375/MPQ-4A
Control-Power Supply C-2014/MPQ-4A
Radar Data Computer CP-319/MPQ-4A
. . . and Electric Desiccant Dehydrator
HD-264/MPQ-4A

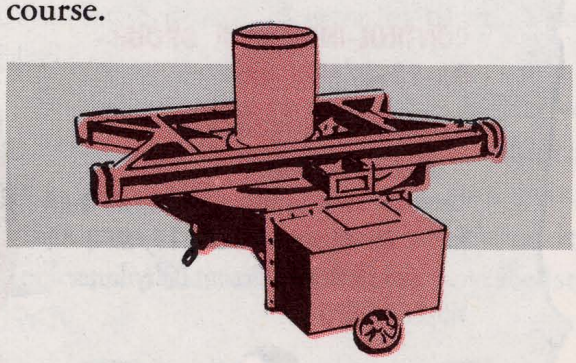
One at a time, please.

First: ANTENNA-GROUP—OA-1258/MPQ-4A

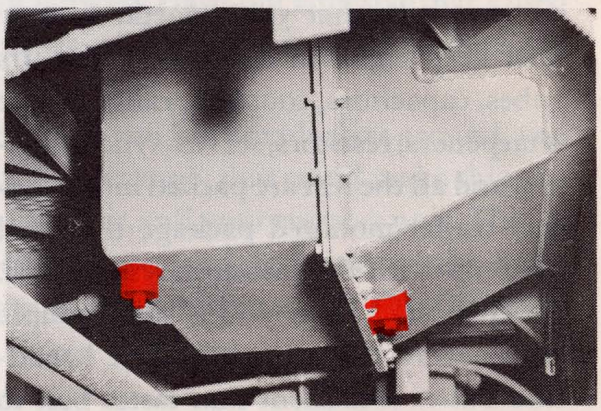
One common item of preventive maintenance in this group—and on the others, too—is the adjustment of vent doors and drain plugs. Those doors and plugs live an "either/or" kind of life. Either they're closed (when the unit is on the move) or they're open (when the locator is on location and hard at work).



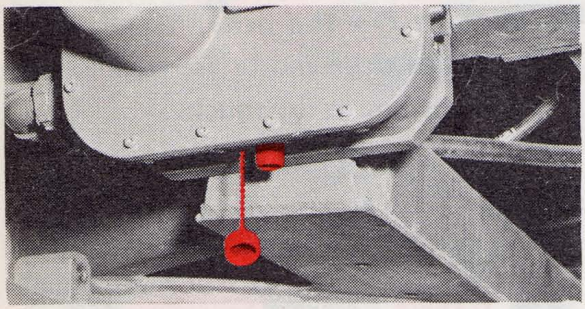
Funny thing about some of those vent doors and drain plugs, too. They're hard to spot. Usually in an underneath location. Which figures for a drain plug, of course.



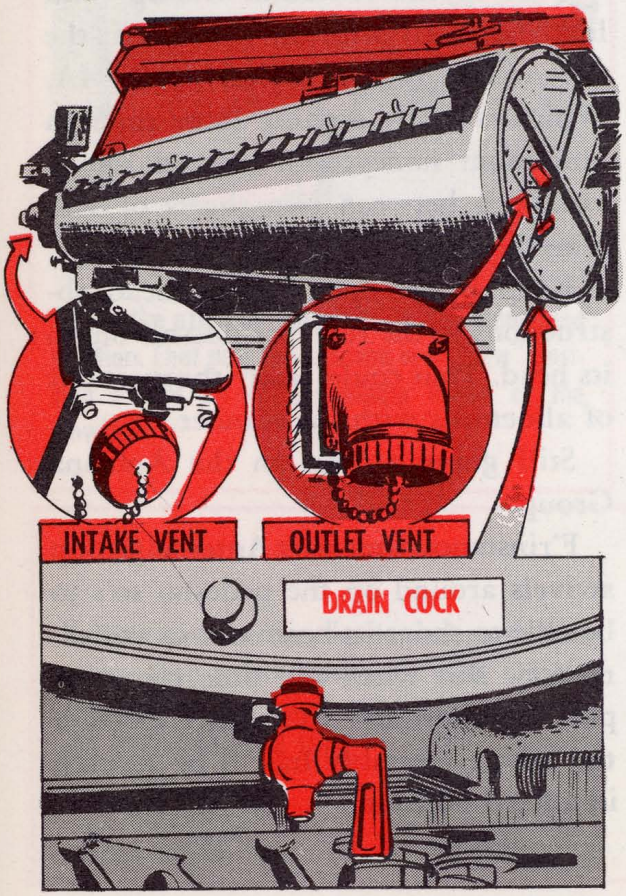
A good example is the antenna pedestal. There're two drain plugs down as far under as you can get.



Another one that's out of sight (and sometimes out of mind) is the one underneath the antenna elevation counter assembly.

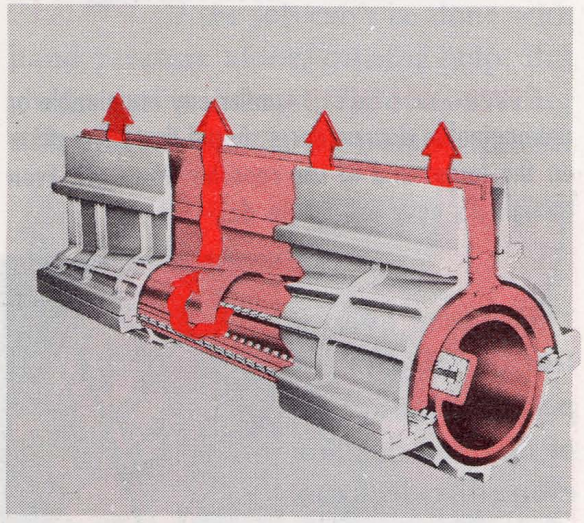


One of the most important components of the antenna group is the foster-type scanner (Antenna AS-835/MPQ-4A). It has two air vents and one drain plug. There's an air vent at each end of the scanner. And the drain plug takes the form of a drain cock located at the large end of the scanner.



One note about the cock. It's the only drain that needs pretty much of a daily check. Just give the handle a half-turn to release any water that might build up in a 24-hour period. And then close 'er up again.

Speakin' about the scanner—this cone-shaped unit is one of the most sturdy and yet one of the most sensitive components on the mortar locator. And if it loses its touch, the whole radar set is little more than a pretty silhouette in the settin' sun.



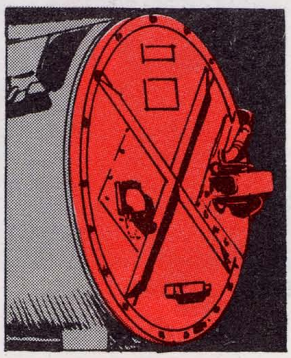
One thing about the scanner: it's got a mouthful of teeth that would make a shark look like a toothless baby. They are known as barrier teeth. And, OUCH, those choppers can develop toothaches that grow into headaches for everybody connected with the locator.

Like so: the inner cone, or rotor, weighs in at about 400 pounds and spins around at 1,020 RPM. Inside are the teeth. Two sets on the waveguide shell and one on the rotor itself. A lot of weight . . . a lot of teeth . . . a lot of speed.

The clearance between each tooth leaves little room for crooked molars. Barely room for a hoarse whisper 'twixt them. As a matter of fact, the scanner actually needs a high-priced balancer to keep that collection of teeth from chewing each other—and everybody else—to misery.

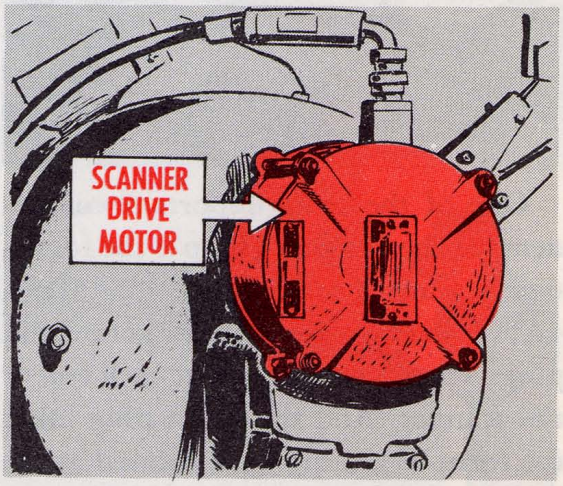
And there's no dentist this side of fifth echelon. Danger is that any operator with a socket-head wrench can get at them. And that's where the toothaches and headaches have been starting.

NEVER—NOT NEVER—under any imaginable or unimaginable circumstances should that cover plate on the larger end of the cone be taken off. Even though it's easy enough to do.



Because even a leaf, or a piece of paper, or some specks of dirt and dust, or even a dirty look can prevent two teeth from passing between each other. Strange as it sounds, there've been stories about a whole washer being left in there.

Incidentally, the scanner drive motor is a hot number. Literally. This .3-hp motor develops a little more than a 1000 RPM's and normally runs hot enough to make a man yank his hand away if he touches it. On the other hand, that doesn't mean the motor is overheated. It just runs hot to the touch.

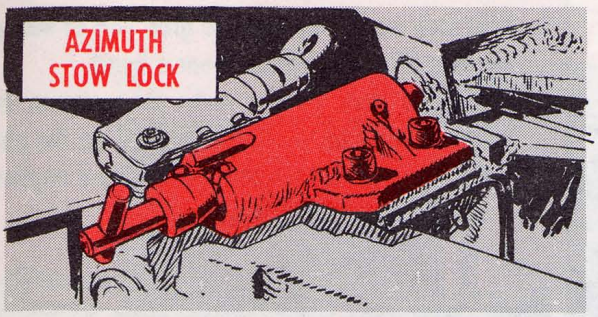


Part of the Antenna Group—and linked directly with the scanner—is the antenna reflector AT-634/MPQ-4A. Which is really nothing more than an aluminum honeycomb pressed like a sandwich between two sheets of aluminum.

Keep an eye open for overhead obstructions so the reflector doesn't bump its head. That could easily throw it out of alinement with the scanner.

Still going strong on the Antenna Group.

F'rinstance: the entire Antenna Group swivels around on the pedestal so's to be able to shoot its beam out in any direction. But when the time comes to pack up and move to another location the whole assembly has to be secured in a fixed position.

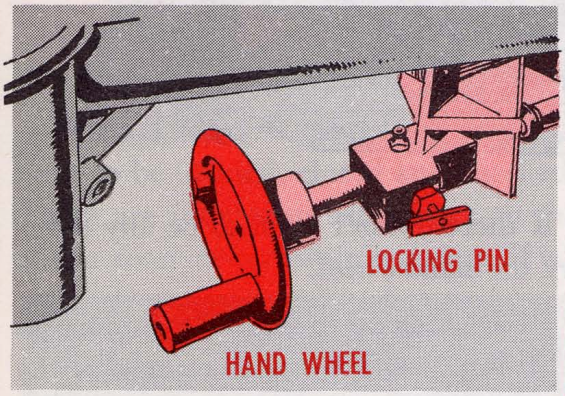


That means a little session with the azimuth stow lock. This locking gadget locates and secures the rotating portion of the antenna during transit to within .007 of dead ahead center. And she's easy enough to engage. Trouble is, like some engagements, maybe a little tough to get out of!

So. If everything is free and easy, all a man has to do to release the azimuth stow lock is to disengage the azimuth handwheel . . . turn the handle of the stow lock to the left . . . and pull the pin out of the female insert in the pedestal.

BUT—if the pin doesn't come out free and easy, it's time for just a little "jockeying" to free it.

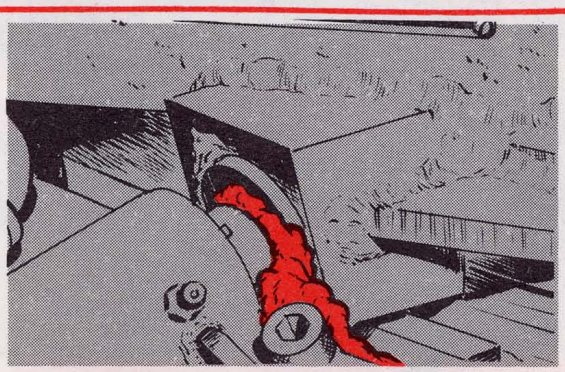
One little word of caution throughout the whole unlocking procedure: **NO HAMMERS OR HAMMERING, PLEASE.** If the job can't be done with hand pressure alone, call for help. But chances are a little patient maneuvering will pull the pin. By the numbers, then:

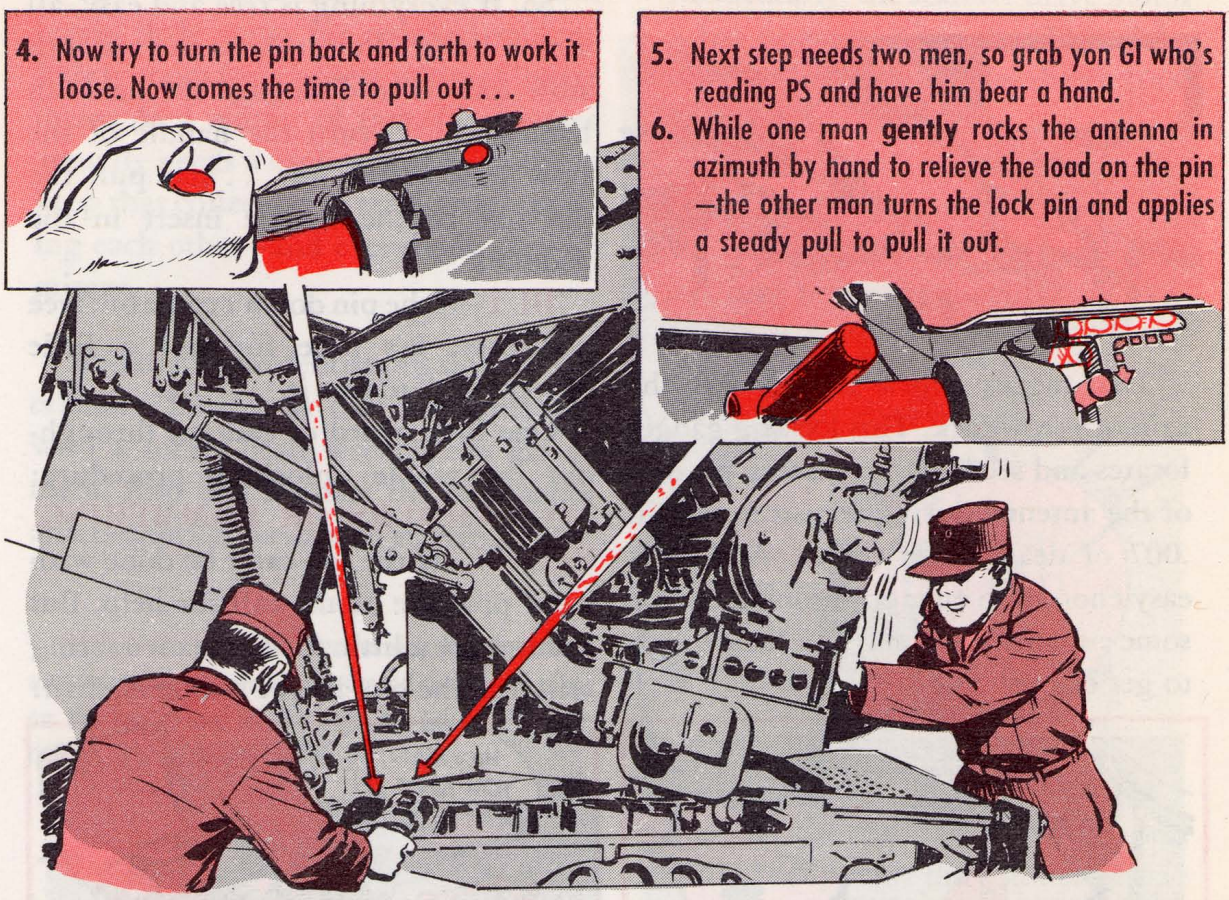


1. Put the azimuth handwheel in the disengaged position. That puts the antenna in a "slew" position except for the restraining action of the stowlock.

2. Take a look at the whole MPQ-4A to see if it's standing on uneven ground and therefore at an angle. If she's on an angle, that will tend to throw an extra strain on the lock pin. Try to level the unit as much as possible.

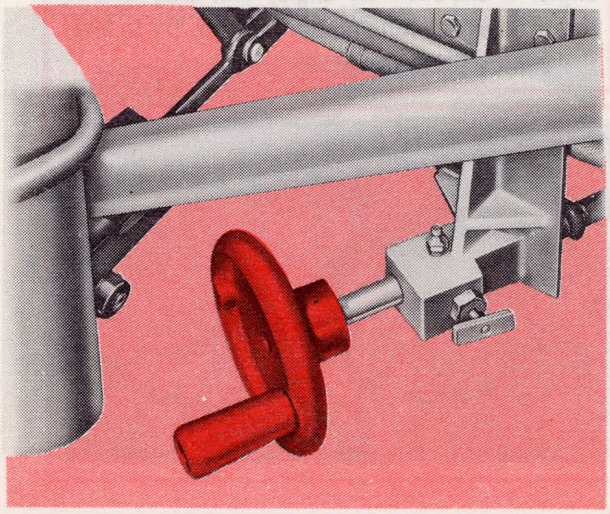
3. Like any connection, the stowlock needs lubrication. Keep grease around the joint. (GREASE, Aircraft and instrument, MIL-G-3278, 1 lb can FSN 9150-261-8298 (QM).





If this doesn't unlock the problem, and if there doesn't seem to be any other loads causing misalinement, it's time to try the handwheel.

And when you start crankin' the handwheel you pick up quite a mechanical advantage. For every pound of pressure applied at the wheel, **one ton** of force is applied at the lock pin.

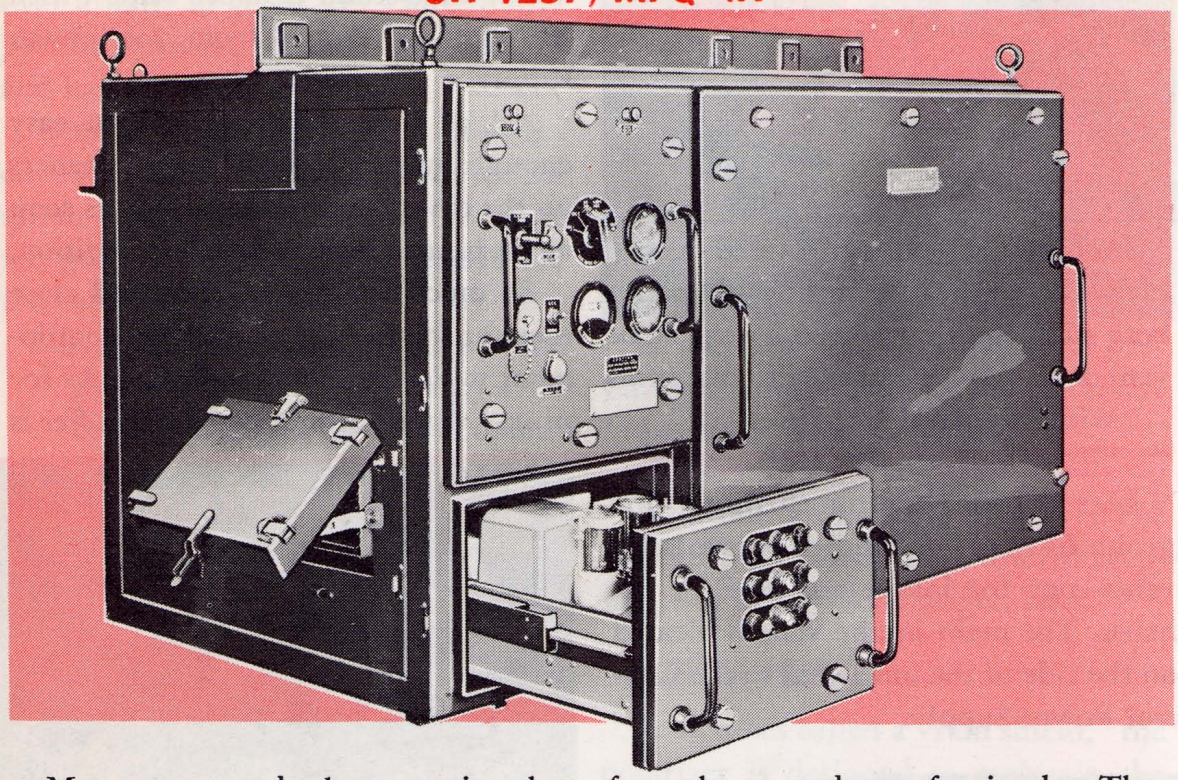


It all adds up to this: The minute an operator uses too much muscle at the handwheel, the entire azimuth drive assembly is goin' to wind up permanently damaged and disabled.

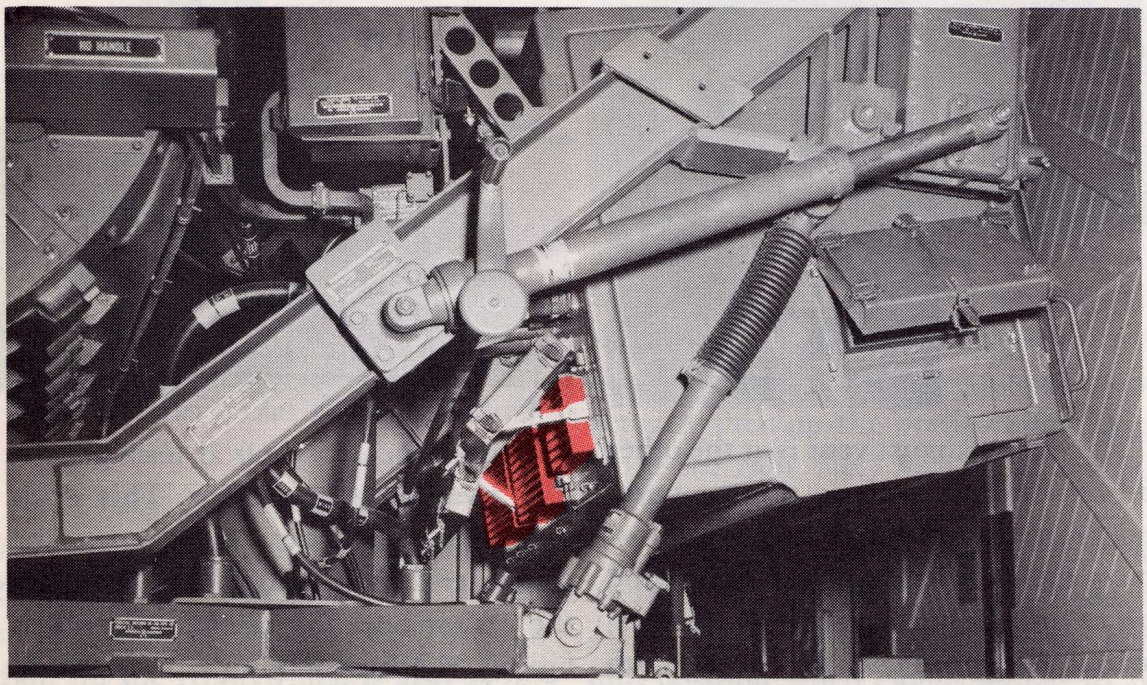
And, like the man says, just never even think about using a hammer or any heavy tool to force the lock. Anything as drastic as that will just leave everything so banged up that the whole works will end up at a depot for repair.

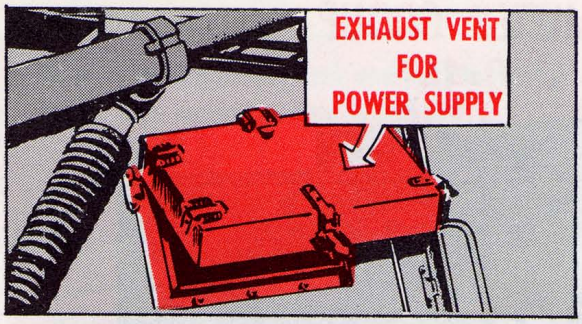
But in almost every case, a couple of good operators will be able to "rock" this baby loose without using the handwheel. And, natch, if they do lay hands on the handwheel it will be with the A-pound-equals-A-ton formula in mind.

RECEIVER-TRANSMITTER GROUP— OA-1257/MPQ-4A



More vents and plugs, again, that have to be opened, closed and checked. There are four vents altogether on the entire receiver-transmitter group. Two for exhaust and two for intake. They provide air flow for the three units that make up the group.





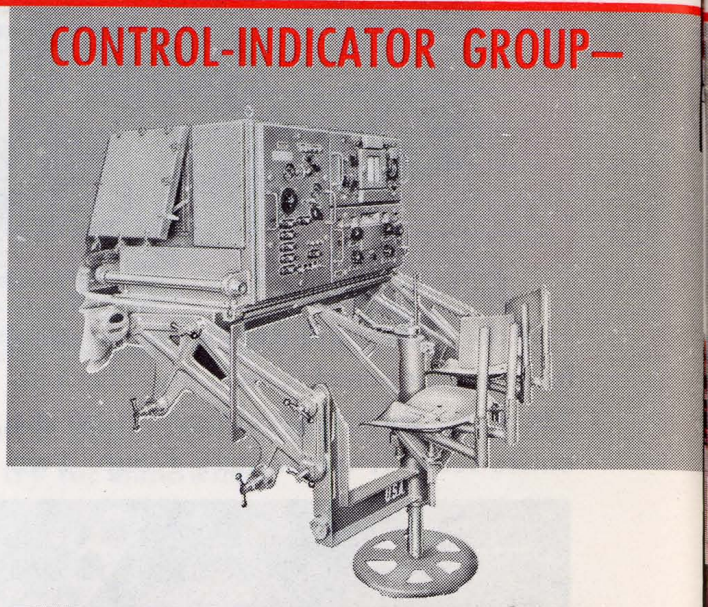
Both intake vents are located next to each other at the rear of the cabinet. But both of them are covered by the same vent door. Also one of the exhaust vents . . . with its own door.

Right around the corner from that one is the second exhaust vent, which lets hot air escape from the power supply.

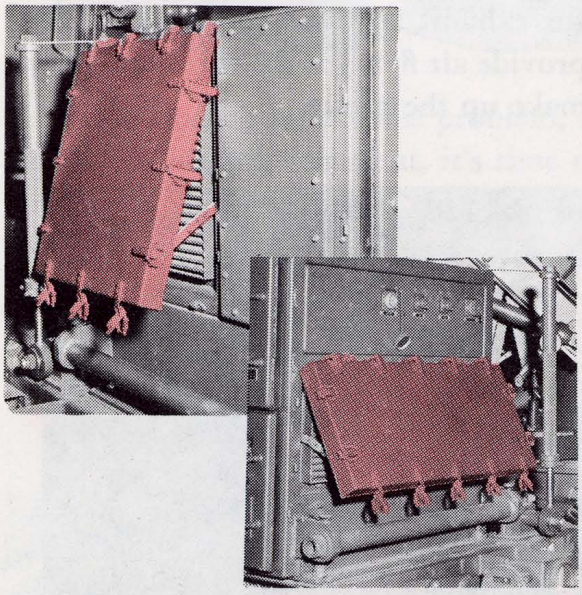
All of these vent doors open easy enough by releasing the snap fasteners on the covers, and all stay open as soon as the hinged locking arm is in position.

So much for vents. Open and close them at the right time and your equipment will run smooth and cool. As for plugs, about the only sweat they offer is

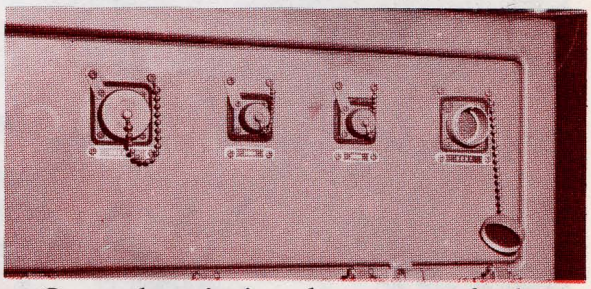
CONTROL-INDICATOR GROUP—



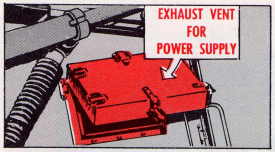
Lots of air flowing through this group. Most of it is handled by two large vents—one for intake and one for exhaust. The main intake vent is located on the side of the unit, next to the Control Power Supply.



The main exhaust vent is at the other end of the unit, next to the computer and azimuth and range indicator. Just above the door in the upper right hand corner of the end panel is another, smaller vent primarily for the azimuth and range indicator.



Once the air is taken care of, then start pluggin' away. Or at least get the dirt away from the plugs. This is an operation that's best done with the computer drawer pulled out. These are the easiest ones to get clogged and, it figures, the least likely to enjoy steady PM plug treatment.



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Bend over and check the four plugs on the bottom of the receiver-transmitter cabinet. Open them up to see if any gook, water, etc., has built up inside the cabinet.

Check this—On new equipment, these plugs will be taped over by OD-colored tape put on by the manufacturer. That tape, of course, has to come off so the plugs can do their job.

So much for the wind-and-water preventive maintenance on the Receiver-Transmitter Group.

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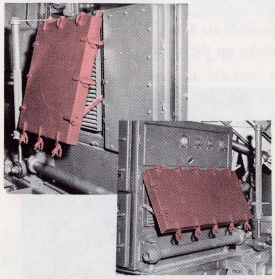

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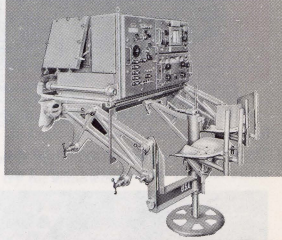

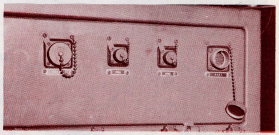

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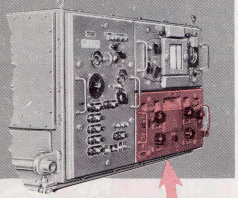
OA-1256/MPQ-4A



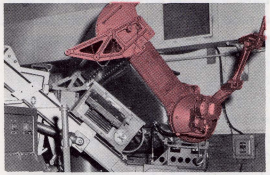
There are six of them in the bottom of the computer cabinet. Once the drawer is pulled out they stand out like Connie at a Girl Scout meeting.

One last check to remember is on the Electric Desiccant Dehydrator HD-264/MPQ-4A, which perches on the hockey stick. It has one big vent door right on the front which is also as obvious as Connie's blond hair.

Now one or two more touches of PM will go many, many miles toward keeping your MPQ-4A on target. Like:

CIRCULAR POLARIZER MX-2219/MPQ-4A

Sometimes called a "rain shield," the polarizer is designed to maintain the



efficiency of the set during rain, snow, hail, and so forth. Many radar sets will show a "return" on their scopes caused by bad weather. In other words, they actually pick up the precipitation (big word for rain, etc.) which, of course, clouds the scope.

The polarizer eliminates the effect of weather on reception and keeps a sharp picture on the scope. Always slip her into position when clouds gather so as to keep weather out of the picture.

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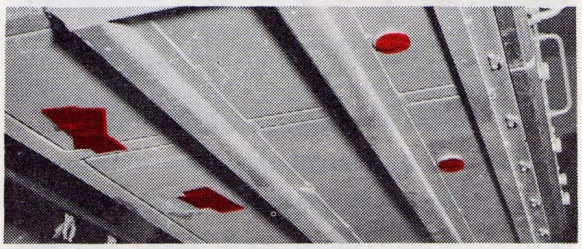

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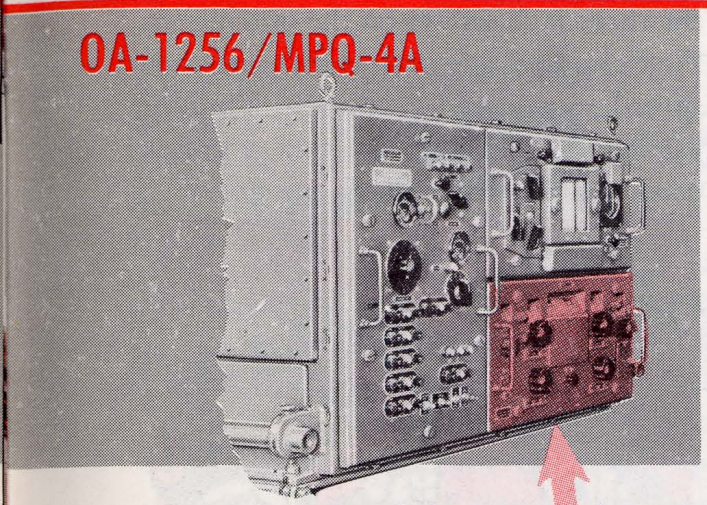
OA-1256/MPQ-4A



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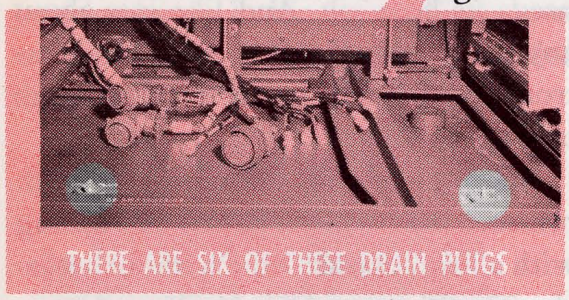

THERE ARE SIX OF THESE DRAIN PLUGS

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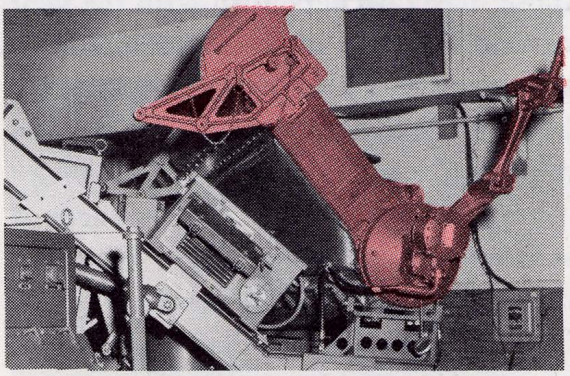

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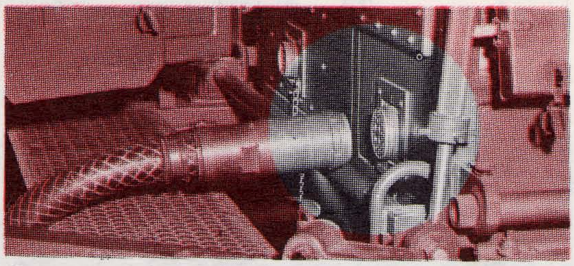
PLUG P-1002

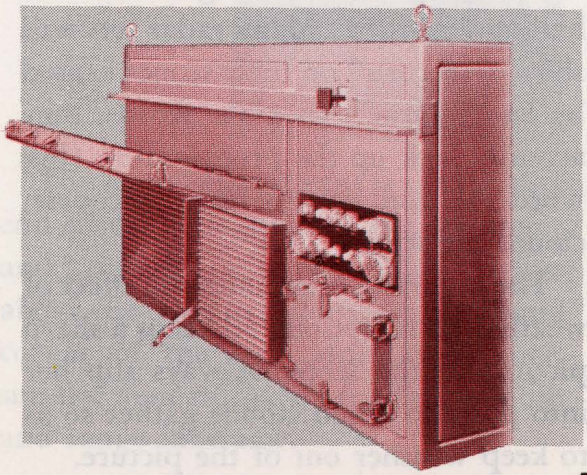


Ease it in. Carefully but firmly. So true. Because stories have been drifting down about connector P-1002 not getting together right with Jack J-1002.

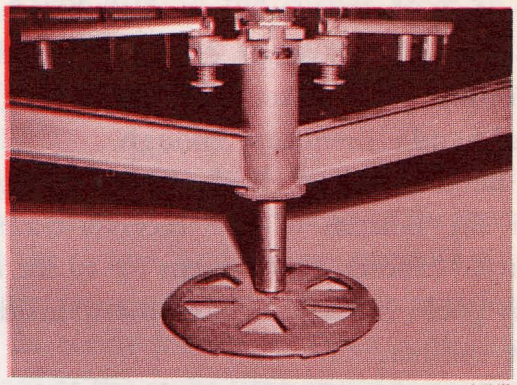
The alinement key on the jack can be broken pretty easily if the connector is jammed into the jack too fast and if the jack key isn't lined up with the slot on the connector. Carefully, please, and line 'er up first.

SNAP FASTENERS

It's a good habit to slip into. Folding those snap fasteners flush with the vent covers. They can catch on a belt loop or sleeve and rip the fabric and also slightly bend the fastener. More a nuisance than anything else, but there're so many covers and fasteners that the chances of snaring one are pretty high. Fold 'em flush before moving to the next cover. Or if they're the kind that hang down, be sure they are hanging straight down.



JACK SCREW



Any time naked metal is exposed to the cruel, cruel world, it needs at least a thin coat of protection. So it is with the three jack screws on the outriggers. First clean off any rust or dirt and then spread some clean grease on. Y'might use the same aircraft-instrument grease used around the azimuth stowlock.

Like any vehicle, the mortar locator needs its hose job. And like just about any piece of vehicular mounted electronic equipment, it can stand its share of water.

But **not** water that's supplied by high pressure hoses. Just a generous flushing with a low pressure hose without a nozzle. That'll get rid of the dirt without flooding the operating compartments.

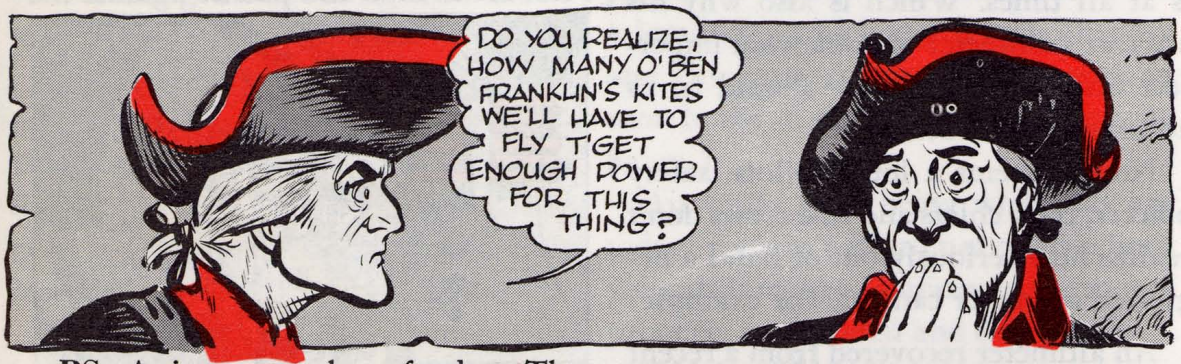
The gaskets that seal the covers and latches will keep out rain and snow and water during deep-fording operations, but they can't stand pressure.

With an eye on these possible sore spots of operation and maintenance and the other on the standard preventive maintenance services like in TM 11-1367 (Operator's and Organizational Maintenance, Radar Set, AN/MPQ-4A) an operator should be well along the road to trouble-free performance. Keep your antenna tuned for the new TM-11-5840-208-10 which will be available soon.

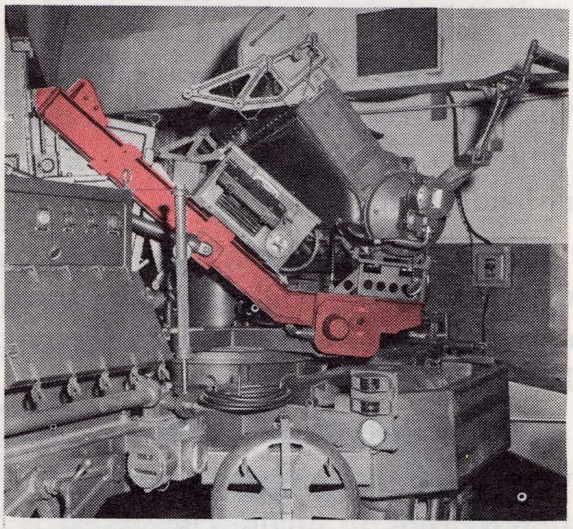
DA Form 11-238 provides the maintenance check list to make that chore smooth and easy. Use it and believe it and remember that any mortar locator that leaves its unit for repair or maintenance is going to go **all** the way back. At least to fourth echelon, and probably to a depot.

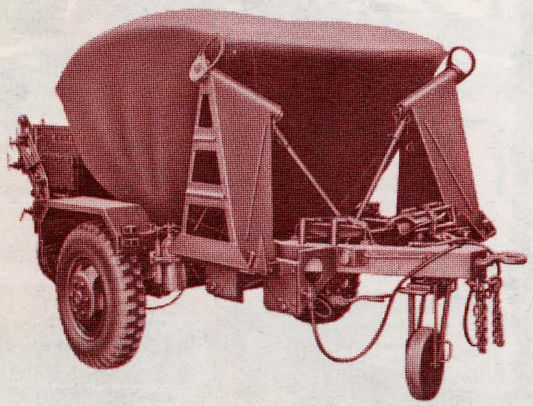
It'll be a while getting to the rear... be quite a while in the shop... and another long time before the set turns up with its unit again. Which puts the finger heavier on good PM in your unit.

Your MPQ-4A will seek and find every time. But only if you seek and find trouble before it causes trouble.

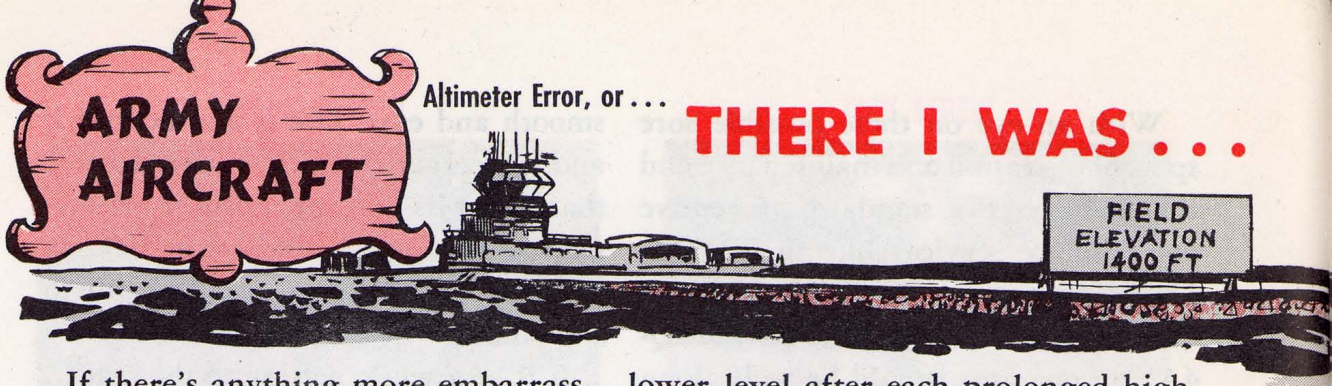


PS: A tip or two about fenders. The two fenders on the trailer are either up or down. But sort of watch those ups and downs. When the antenna trailer is set for travel, the fenders have to be folded up and secured in that folded position by the locking pins. When your unit reaches its location, they are folded down.





Most critical of all, if they're not folded down the reflector support arms can come swinging around if rotated manually and smash into them.
Can happen. Has happened. Shouldn't happen.


ARMY AIRCRAFT

Altimeter Error, or . . .

THERE I WAS . . .

If there's anything more embarrassing than having the ground fail to appear when you're expecting it, it's having it suddenly show up when you don't expect it.

Which is why it's mighty important for your pilot to know just how high he is at all times. Which is also why his aircraft's altimeter—a somewhat imperfect instrument at best—should be as accurate as possible.

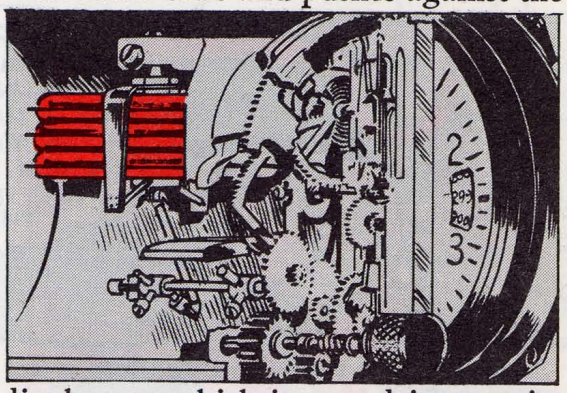
Now it seems a lot of pilots, safety officers, crew chiefs and line crews don't realize how seriously out of hand a neglected altimeter can get. For example:

An altimeter recovered from a recent night clobber was checked out at each thousand-foot level—and was off from 700 to 800 feet all the way. It indicated 150 feet at the 1000-ft test point. Ever try landing on a cloud?

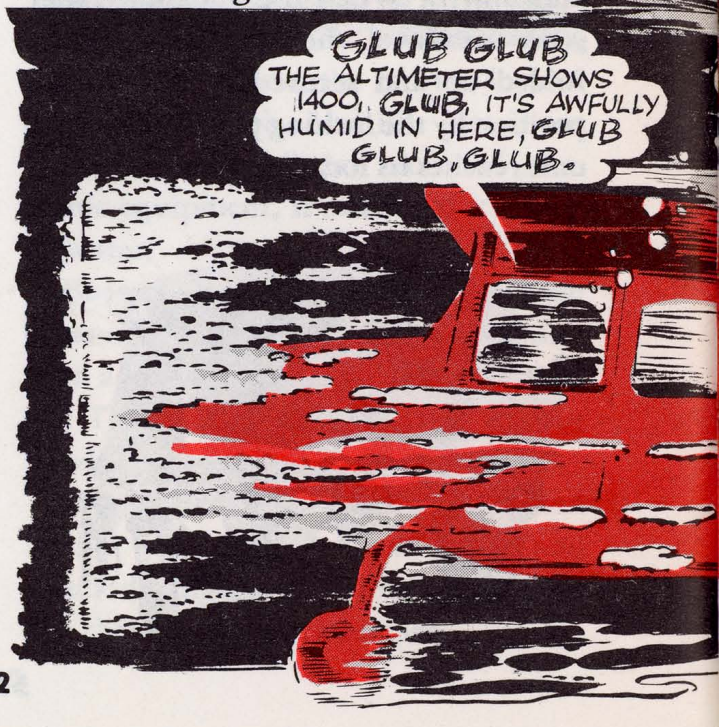
Such a big error doesn't take as long to build up as you might think, because normal flight procedures will throw these instruments out of whack.

Two things affect the altimeter's accuracy: The first is vibrations of the aircraft while in flight. The second is the shifting of the internal stresses of the aneroid (diaphragm) — sort of mixes them up and twists them around. One part of this internal stress shifting is hysteresis (metal lag), which messes up the bellows any time you return to a lower level after each prolonged high altitude flight.

The copper bellows are supposed to expand and contract evenly according to the static air pressure found at each flight altitude. This static air pressure starts at the static pressure side of the Pitot static tube and pushes against the



diaphragm, which, in turn, drives a series of gears, pinions, hairsprings and some other interesting bits of mechanism.



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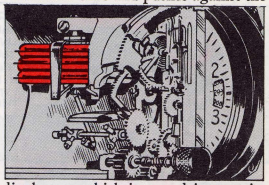
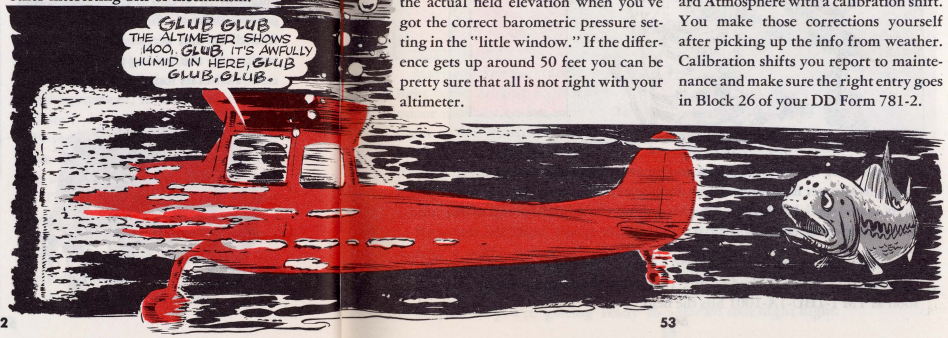


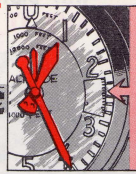
diaphragm, which, in turn, drives a series of gears, pinions, hairsprings and some other interesting bits of mechanism.



Just like the insides of a fine watch, all these touchy parts may shift the calibration of your altimeter while it's in flight and being bounced around by normal vibration. At the same time, those internal stresses in the diaphragm get kicked around. So, it takes a little time after you've changed altitude for the bellows to get back to their original positions.

This doesn't mean your instrument's not accurate any longer. As you've probably noticed, letting the aircraft sit on the ground for a spell is all you usually need to return the altimeter to a correct reading.

Your best clue that a permanent calibration shift—one that needs correcting—has taken place is to notice the difference between the indicated altitude and the actual field elevation when you've got the correct barometric pressure setting in the "little window." If the difference gets up around 50 feet you can be pretty sure that all is not right with your altimeter.



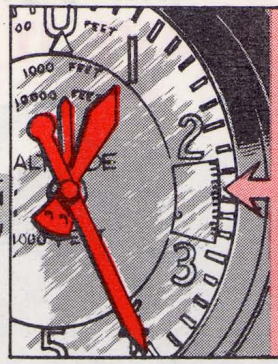
IF THERE'S A DIFFERENCE OF 50 FEET BETWEEN YOUR READING AND THE INDICATED ALTITUDE FOR THE FIELD ELEVATION (WITH CORRECT SETTING IN "WINDOW")—SEND YOUR ALTIMETER TO THE MAINTENANCE SHOP FOR RECALIBRATION.

That's the time to see that the altimeter goes back to a maintenance shop for recalibration, so the "little window" setting and its setting marks can be re-adjusted to within the manufacturer's tolerances . . . which match up with FAA and DA requirements. (You'll see 'em soon in the -6 preflight section for your Sioux.)

Air traffic rules being what they are today, you can't afford **not** to keep both your altimeter and static pressure source properly maintained and calibrated.

Another thing to remember is that you don't want to confuse false readings caused by normal deviations from Standard Atmosphere with a calibration shift. You make those corrections yourself after picking up the info from weather. Calibration shifts you report to maintenance and make sure the right entry goes in Block 26 of your DD Form 781-2.

AT MINUS 150 FEET



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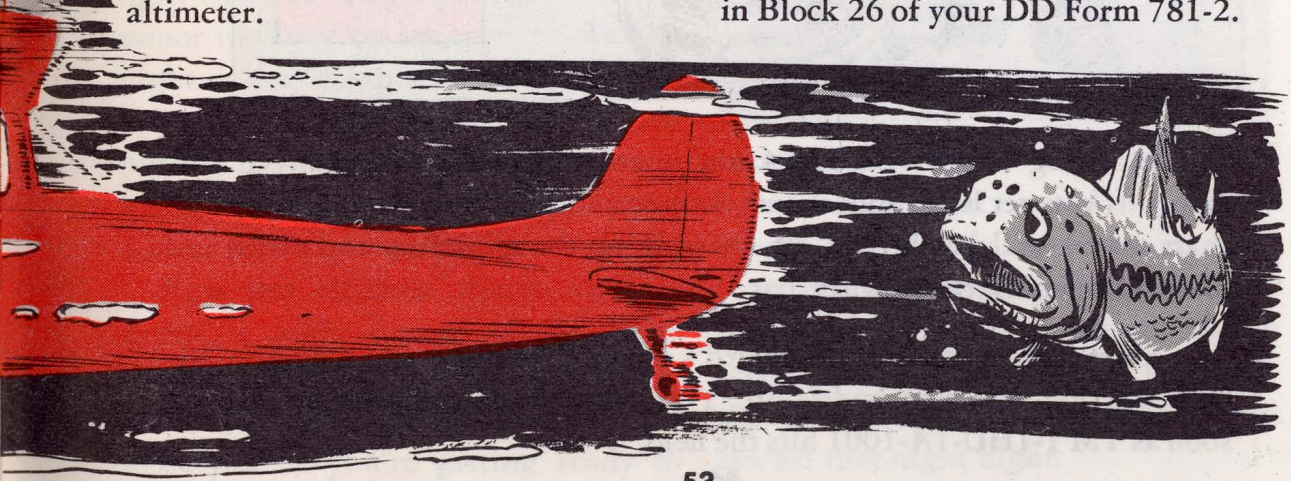
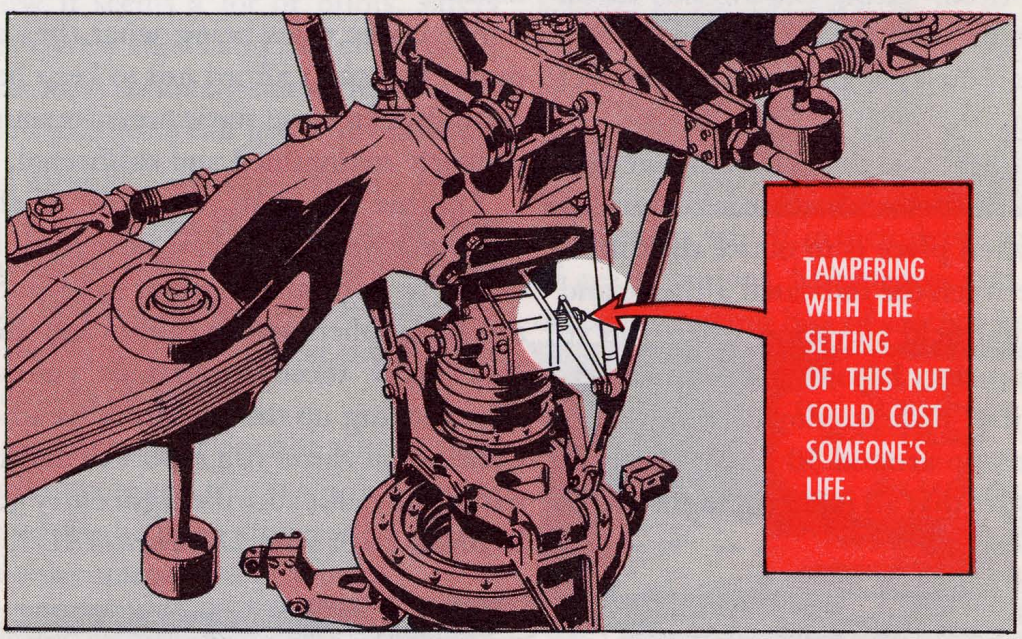


Lay off that AN 320-4 (FSN 5310-176-8108) nut when you're setting the established travel for the stabilizer's damper shaft on your Iroquois (HU-1A). It's the nut on the control arm end of the damper shaft.

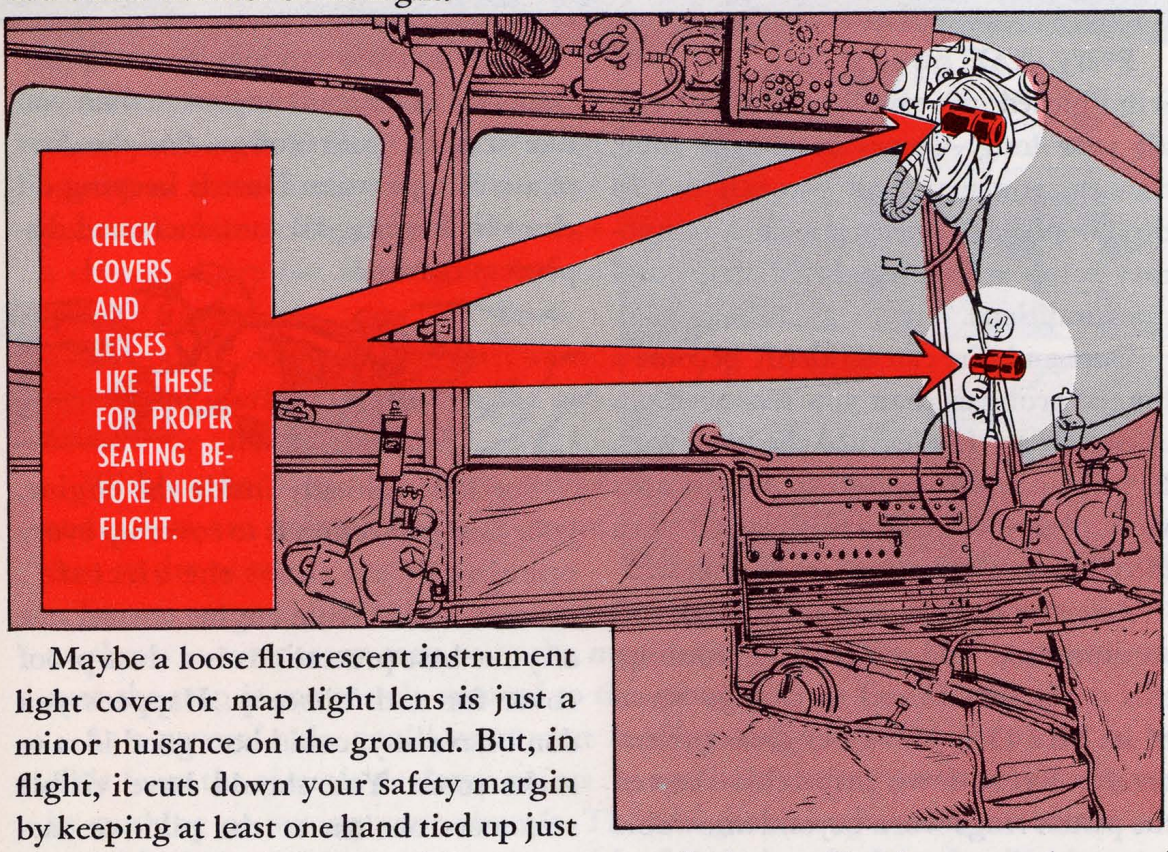


The setting of the AN 320-4 nut is **not** supposed to be changed. Happens you get itchy fingers and tamper with that nut, your damper shaft travel will be thrown off, messing up the minimum and maximum dampening effect of the bar.

Since this affects the whirlybird's balance in flight, you may also be tampering with somebody's life. You'll find the official word on this soon as TM 1-1HU-1A-1001 hits the field.

BRIGHT LIGHT—NO SIGHT

Used to be pretty annoying having a flashlight shine into your parked car window unexpectedly, didn't it? Well, you get the same cockpit effect when a loose lens vibrates off in flight.



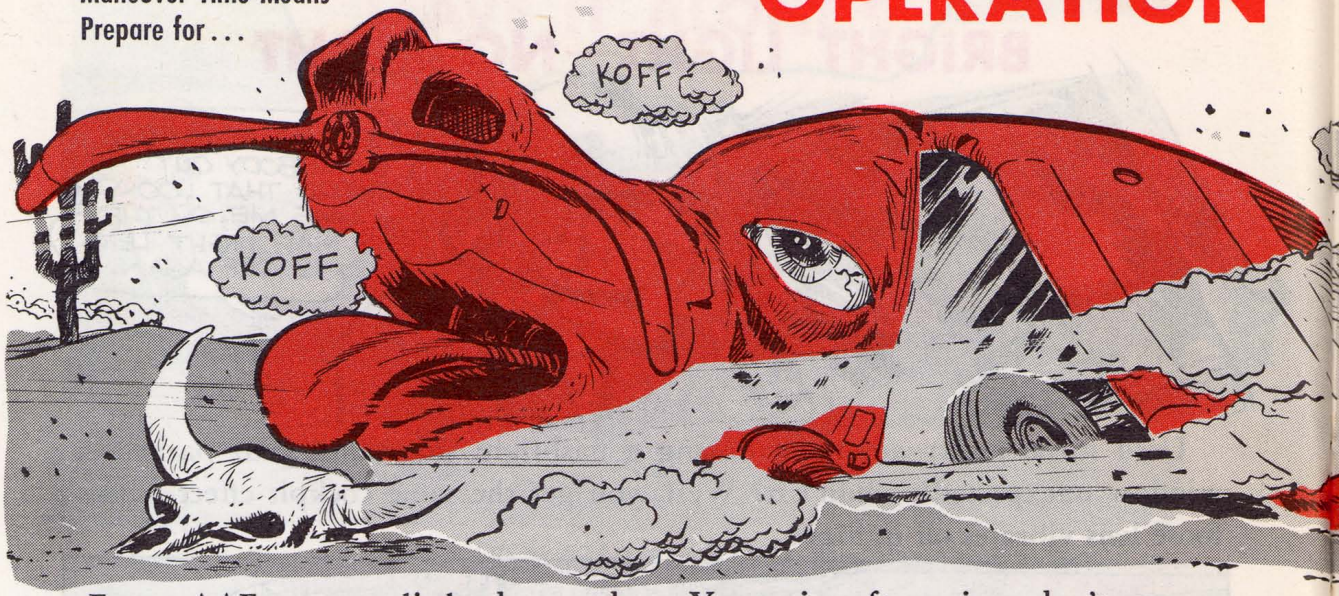
Maybe a loose fluorescent instrument light cover or map light lens is just a minor nuisance on the ground. But, in flight, it cuts down your safety margin by keeping at least one hand tied up just putting them back in place. Worse yet, a bright, unshielded cockpit light means almost zero night visibility.

Now put all these things together during a night tactical landing with minimum ground lighting. Let's say the red lens on your map light decides to jar loose just as you're getting ready to touch down. You've got plenty of light—but no sight . . . and no hands or time left to do anything about it.

But there was plenty of time to check each cover or lens for proper seating when you were checking to see if the lights were working—**before** you started that night flight.

Maneuver Time Means
Prepare for . . .

OPERATION



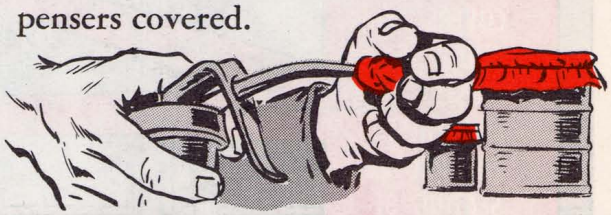
Every AAF owns a little dust and wind-blown grit you learn to live with all year long. Comes maneuver time, though, you may find yourself out in the boondocks, operating on a temporary setup with unsurfaced strips and dry conditions.

Dust and dirt can suddenly become a bigger problem than you reckoned . . . as one air section learned the hard way. It was unlucky enough to hit an area with plenty of sandy soil that'd turn into dust as soon as you set foot on it.

After noticing unusually high oil consumption and spark plug fouling, this outfit was forced to change seven of its Bird Dog (L-19) engines prematurely. A tear down inspection showed the piston rings worn beyond allowable tolerances in only a few hours of operation.

Dust won that battle, but these bird boys didn't come away empty handed. Next time they'll be planning ahead with a list of do's and don'ts that should be of use to any aviation section that has to operate without hardtop strips.

Your aircraft engines don't appreciate grit in their oil any more than you like it with your coffee. So, the first phase of Operation Dust is keeping oil clean by keeping all containers and dispensers covered.

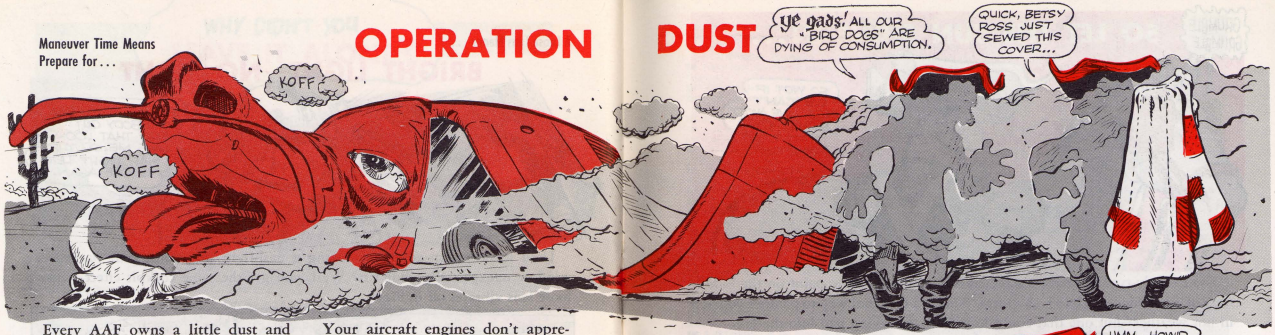


For lubes already inside the engine, your best protection is to cover up every opening at all times the aircraft's moored. Aside from engine covers, one of your best protections is a dust proof cover for each airscoop. Happens you don't have any, could be a good idea to make some. You should have visible streamers on 'em so the pilot or mechanic can't miss taking 'em off before flight.

Heavy dust conditions mean you'll also have to check oil sumps more frequently for signs of contamination and be ready to **CHANGE OIL ANY TIME YOU FEEL THE SLIGHTEST TRACE OF GRIT.**

Maneuver Time Means
Prepare for . . .

OPERATION DUST



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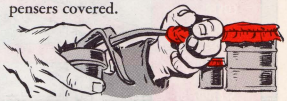

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Naturally, no pilot or mechanic would run up the engines with the carburetor air filter by-passed.

Without hard surface strips, props and rotors are going to kick up more dust in dry areas.

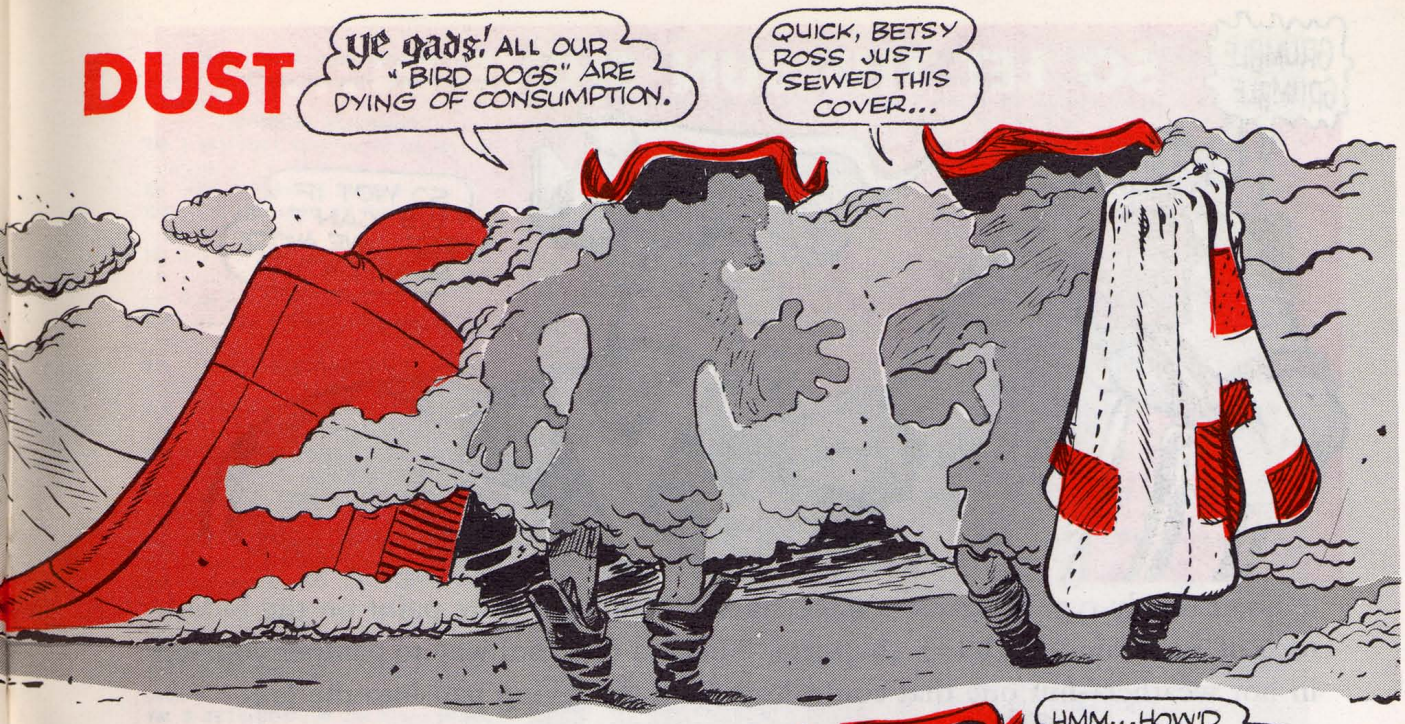
So you want to place your run-up stands on the hardest ground you can find, or throw a temporary tarp over the most suitable site. But you've got to make sure the tarp is completely secured to the ground.

As a general rule, you'll want your landing and take-off strips as far as possible from the aircraft tie-down points . . . and hold taxiing down to the minimum by pushing or towing your aircraft. The less ground operation the better.

Aside from making your engines sick, flying dust and sand will pit components of rotor and prop hub assemblies, not to mention what they'll do to windshields and canopies.

The objective of Operation Dust is to keep this abrasive action against friendly aircraft to a minimum. In extremely dusty areas, the job gets too rough sometimes. That's when it's better to make a strategic withdrawal by pulling any engine showing signs of wear **before** it gets beyond the point of no return . . . in other words, while it's still economically repairable.

DUST



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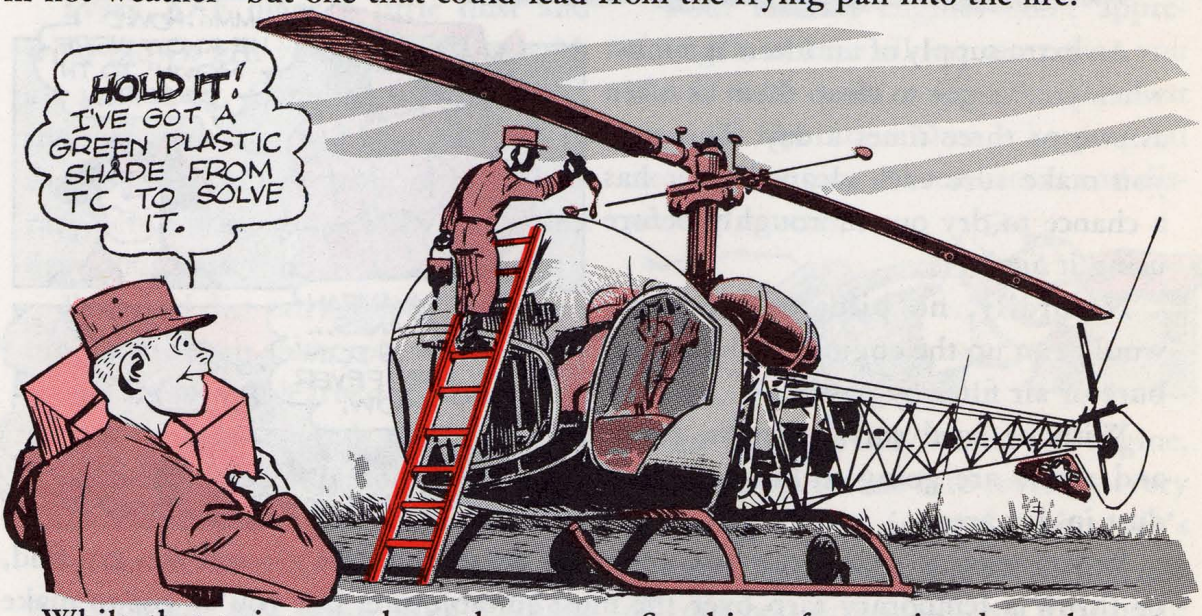
Some shady-type characters have started slapping white paint on the bubble tops of their Sioux (H-13) choppers. This is a real cool way to pamper yourself in hot weather—but one that could lead from the frying pan into the fire.



While that paint may keep the sun out of your eyes, it does a good job of keeping upstairs air traffic out of your eyes, too. Makes it easier than usual to climb up into the bottom of another chopper.

The smart operator uses sun glasses or the new APH-5 helmet with the built-in shade to fight off glare . . . and he takes off his doors to improve ventilation (with his CO's permission).

Speaking of removing doors, be sure you tag them for the aircraft they belong to before you tuck them away for the summer. They've got to be stored just right, too, or else they may get stepped on, run over or turned into salvage by mistake.

If you'd like to use a green transparent plastic, get in touch with the Transportation Materiel Command, St. Louis, ATTN: TCMAC-E. They'll give you the green light.

A selected list of recent publications of interest to Organizational Maintenance Personnel.

TECHNICAL MANUALS

TM 1-1-1-1001 Mar Pow Source Bank & Turn Ind.

TH 1-1H-19A-4-20P Jan H19.

TM 1-1H-21C-1011 19 Feb 60 Throttle Sync Cam (H-21C).

TM 1-1H-37A-9 Jan Cargo Load Instr.

TM 1-1L-20-512 Feb Install Rudder Adjust Trim Tab (L-20).

TM 1-1L-20A-1 5 Jan 60 Flight Handbook L-20A.

TM 1-1L-20A-210 Feb Install Ventral Fin (L-20A).

TM 1-1L-23D-4-34P Dec.

TM 1-1U-1A-4-20P Jan U1A.

TM 1-2R-R1820-44 Nov Models R-1820-84, -84A, -84B, Aircraft Eng.

TM 1-235 Feb Float, Ski & Tandem Landing Gear Op.

TM 5-1450-200-10 Feb Elevator Hydr GM Auto Doors Mil Type D.

TM 5-2410-205-10 Jan Tractor, Full Tracked, (Intnl Harvester Mod TD-24-241).

TM 5-2410-205-20 5 Feb 60 Tractor, Diesel w/Bulldozer.

TM 5-2420-207-12P Feb Tractor (Letourneau Mod Sup C) W/Eng Mod 6-71.

TM 5-3810-206-20P Jan Crane-Shovel, (Harnischfeger Model 855BG) W/P and Eng Mod 687C-18.

TM 5-3810-207-20P Jan (Quickway Mod M200).

TM 5-3820-201-12P Jan Augers; (Buda Model Y-1) W/eng Buda Model 6B230.

TM 5-3825-202-20, -20P Jan Water Distributor (Macleod Mod W-1M5).

TM 5-3895-214-12P Feb Roller, 9 Ton Mod KX-16-C2 w/eng Hercules Model JXD.

TM 5-4310-207-20 Jan Compressor, Rotary 210 CFM, 100 PSI (Harris Mod J-210-FED).

TM 5-4310-217-20 Jan Compressor.

TM 5-4610-203-10 Jan Water Purif Unit (Met-Pro Mod 3000-2700).

TM 5-4610-204-10 Jan Water Purif Unit (Met-Pro Mod 1500-2600).

TM 5-4610-204-20 Feb Water Purification Unit, Met-Pro Model 1500-2600.

TM 5-4940-202-12P Jan Shop Equip Con Maint Set 3 (Davey Compressor Mod CMU-3).

TM 5-4940-203-12P Jan Shop Equip Elec Repair Set No. 4.

TM 5-6115-200-10 Feb Gen Set (Hollingsworth Mod JHGW3A).

TM 5-6115-234-10 Feb Gen Set, Diesel Eng 15 KW, AC 120/208, 240/416 V.

TM 5-6115-252-12P Feb Gen Set, Diesel (Buda Mod DC 100A3-CE) W/Engine Buda Mod 8DCG-1290.

TM 5-6115-255-20 Feb Gen Set, Gas Eng; 3KW, AC, 120V 1 & 3 Pse, 120/240V, Sin Pas, 120/208V, 3 Pse, 60 Cy.

TM 5-6115-263-12P Jan Int Har Mod UD-14A.

TM 11-1510-201-10, 20P Jan Electron Equip Fixed Wing Command L-23.

TM 11-1520-207-10P Jan Electron Equip HU-1A.

TM 11-1520-207-20P Jan Insta Items, Electron Equip HU-1A.

TM-11-2805-200-10P, -20P Jan Engine GE-12-B, -C, -D, -E, -F, -G.

TM 11-5410-201-12P Dec Rep, Shelter, Elec Equip S-89C/G.

TM 11-5805-236-20P Feb Ringers TA-13/TT and TA-13A/TT.

TM 11-5805-265-12P Dec Repeater Tele TH-18/FG.

TM 11-5805-277-15P Dec Teletype Repeat Set AN/FGC-7A and -7B.

TM 11-5805-281-12P Feb Telephone Repeat TA-126/GT.

TM 11-5805-291-12P Jan Telephone Set TA-264/PT, Telephone TP-9.

TM 11-5805-294-15P Feb Switchboard, SB-993/GT.

TM 11-5820-238-20P Jan Radio Set AN/TRC-29.

TM 11-5820-358-10P Dec Radio Receiv R-390A/U RR.

TM 11-5820-360-10-P Jan Radio Receive R-389/URR.

TM 11-5820-363-10P, -20P Jan Radio Transmit T-278/U.

TM 11-5820-365-12P Jan Radio Freq Amplifier AM-494/GR.

TM 11-5821-215-12 Jan Flight Control Grps OA-2380/USD-1, OA-2381/USD-1.

TM 11-5821-217-12 Dec Radio Set An/ARC-73.

TM 11-5821-219-12P Jan Radio Set Grp (ARC Part/Drawing FES-1254).

TM 11-5821-220-12P Jan All Radio Set Grp (VHF, ARC Part /Drawing FES-1255).

TM 5-6115-266-12P Jan Gen Set 30 KW (Onan Mod 30Jt1XE/550N).

TM 5-6125-201-20P Feb Motor Gen.

TM 8-7310-200-12 Dec Gasoline Stoves and Burners.

TM 9-1400-251-12 Jan Voice Commo (Nike-Herc).

TM 9-1430-250-20P/1 Jan Nike-Herc Ant Mast Gr.

TM 9-1440-250-10P/1 Feb Nike-Herc.

TM 9-1440-250-20P/4 Jan Nike-Herc Direc Sta AN/MSA-19.

TM 9-1450-250-10 Jan Assy, Serv Grp Nike-Herc.

TM 9-1450-250-10P Feb Ground Handling Equip Nike-Herc.

TM 9-1430-250-10P/4 Feb Direc Sta AN/MSA-19 (Nike-Herc).

TM 9-2330-207-25P Feb Semitrailer, M127 and Semitrailer, M127A1.

TM 9-2330-210-25P Jan Semi-trailer, Van: Shop, 6-Ton, 2-Wh, M508.

TM 9-2330-236-25P Feb Chassis Trailer: M514.

TM 9-2350-212-12 Dec Rifle, Sp, Multi 106-MM, M50.

TM 9-4935-402-20P Jan Test Set (Lacrosse).

TM 9-5004-4-12 Jan Corporal-Computer Gr.

TM 10-4510-201-20 Feb Bath Unit M-1958.

TM 10-8415-202-15 Mar Helmet, Flying Protect APH-5.

TM 11-5821-225-10 Jan Radio Sets AN/ARC-27, -27A, -55, -55B.

TM 11-5830-221-12P Jan Intercom Sta AN/VIA-4 (LS-147A/FI).

TM 11-5895-229-20P Feb Radio Set AN/VRC-30.

TM 11-5895-230-10P Dec Countermeasures Set AN/MLQ-8.

TM 11-5895-240-10P Dec Receiving Set Countermeasures AN/TLR-3 (XE-2).

TM 11-5895-257-20P Jan Coder-Decoder OA-1593/MSQ-18.

TM 11-5895-261-12P Feb Power Supply HAC Part/Drawing No. 503232-110.

TM 11-5895-262-10 Jan Op Central AN/MSQ-18, Coder-Decoder OA-1593/MSQ-18.

TM 11-5905-200-12P Feb Attenuators TS-402/U, a TS-402A/U.

TM 11-6115-205-10P, -20P Jan Power Unit-PE-210, -21A, -210B, and -210C.

TM 11-6115-209-10P Jan Power Unit PE-162A, PE-162B and PE162C.

TM 11-6230-202-15 Feb Light Set Grnd Obstr Mark MK-221/G

TM 11-6230-203-15P Light Set, Grnd Obstr Mark MK-222/G, MK-222A/G.

TM 11-6615-205-15 Dec Compass, Contrl Direc Gyro Sys Type MA-1.

TM 11-6625-254-15P Jan Test Set, Teletype TS-2/TG, -2A/TG, -2B/TG, -2C/TG.

TM 11-6625-293-12P Dec Wavemeter FR-91/U, FR-91A/U.

TM 11-6625-311-12P Jan Bridge Summation AN/URM-23.

TM 11-6625-314-12P Dec Multimeter AN/USM-33.

TM 11-6660-200-20P Dec, Wind Measur Set AN/EMQ-11.

TM 11-6660-215-20P Jan Wiresonde Set AN/UMQ-4.

TM 55-507 Dec Trans Corps Floating Craft PM.

TECHNICAL BULLETINS

TB 9-296/49 Feb Calibration Procedure for Test Equipment.

TB 9-1430-250-10/3 Feb Track Sta, Director-Computer.

TB 9-1430-251-20/5 Feb Checks, Adjust on Modif Equip Nike-Herc.

TB 9-1430-251-20/6 Feb Director-Computer; (Nike-Herc).

TB 9-1430-257-20/2 Feb Director-Computer Grp OA-1479/MSA-19.

TB 9-2300-203-12/3 Feb .50 MG M2 and Cupola Mount M13.

TB CML 57 Feb Grenade, M7A1.

TB CML 58 Feb Grenade, M25A2.

TB ORD 253 Feb Unserv Sodium-filled Valves.

MODIFICATION WORK ORDERS

MWO 9-2300-203-20/5 Mar Instal Ign Start Switch Jumper Harness M59, M84.

MWO ORD Y4-1W4 Feb Elim TV Sig Interfer Nike-Ajax.

MWO ORD Y4-2-W6, Y4-3-W7, Mar Outlets, Nike-Ajax.

MWO ORD Y28-W33 7 Mar 60 Nike-Herc.

MWO ORD Y75-W58, Y81-W8 & Y86-W17 Feb Test Station Winteriz Kit Nike-Herc.

MWO ORD Y86-W3 Feb Launch Handling Rail Release, Nike-Herc.

LUBRICATION ORDERS

LO 5-3805-205-15 Jan Scraper, Earth Moving, Towed (Curtiss-Wright Mod CWT-18-M).

LO 5-4310-217-20 Jan Air Compressor Recip.

LO 9-2350-214-10 Jan M103A1 Tank.

LO 10-3930-403-20 Jan Tractor Mercury Super-Huskie A-452-54.

MISCELLANEOUS

SB 11-501 Feb Conversion of Radio Set AN/GRC-9, AN/GRC-87, AN/VRC-34.

SM 9-4-4910-A58 Feb Tool Kit, Hoist and Towing.

SIG 7 & 8 AN/FSG-1 (v) Jan AN/FSG-1 V.

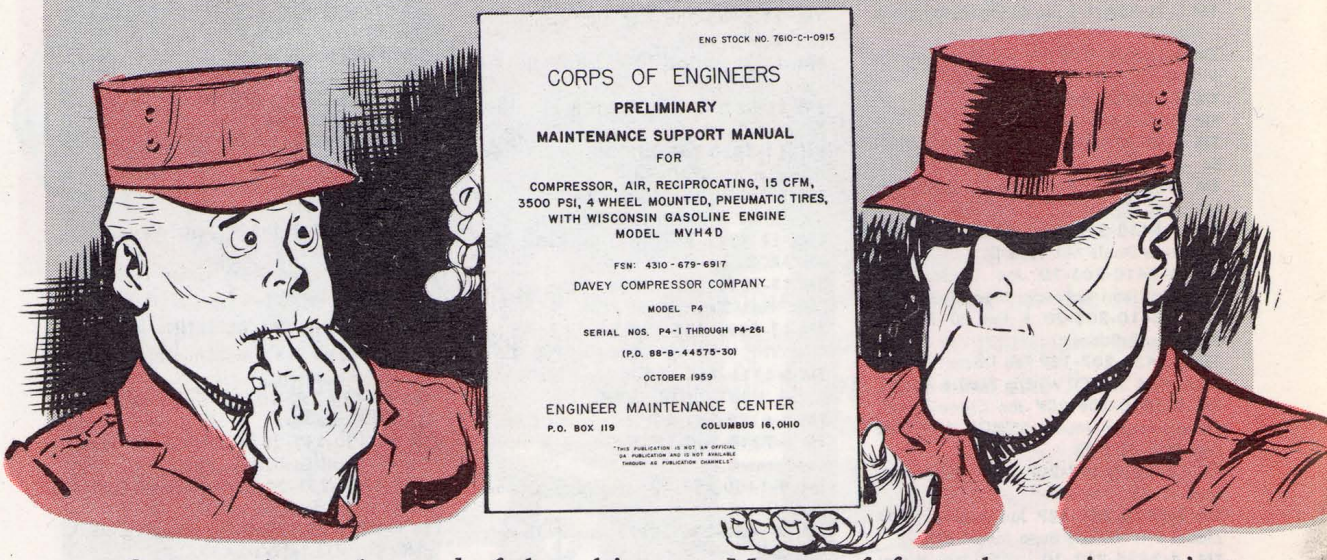
SIG 7 & 8 CN-93/CPS-5B Feb Field Regulator, Voltage CN-93/CPS-6B.

SIG 7 & 8 MD-363/FSG-1 Dec Modulator, MD-363/FSG-1.

ON NEW ENGINEER EQUIPMENT—

PRELIMINARY MAINTENANCE SUPPORT MANUAL

IT'LL DO THE JOB TILL YOUR 5-PART PUBS ARE OUT



Sure, you're real proud of that shiny new item of Engineer equipment that you've just received and can't wait till you see it in action.

And you noticed that in addition to some Army pubs, you got with it a new kind of publication called the **Preliminary Maintenance Support Manual.**

You think you know how to operate it and how to pull PM; but you're not certain . . . and there's a pile of money at stake if you goof.

Matter of fact, the equipment's so new that all the pubs haven't been put out yet. But, you heard they're on the way, but you can't just let your rig stand idle gathering dust until they reach you.

Take a look at the Preliminary Maintenance Support Manual that came with your equipment and use it until you get all your 5-Part pubs.

WHAT IS IT?

This manual is intended to be used along with the manufacturer's pubs until such time as the official DA multi-part TM's can be published.

It gives you the Basic Issue Items List, Maintenance and Operating Supply List, Lubrication Order, Maintenance

Allocation Chart and Maintenance Support List. Until the multi-part manuals are published, this is your authority to requisition accessories, operating supplies and spare parts.

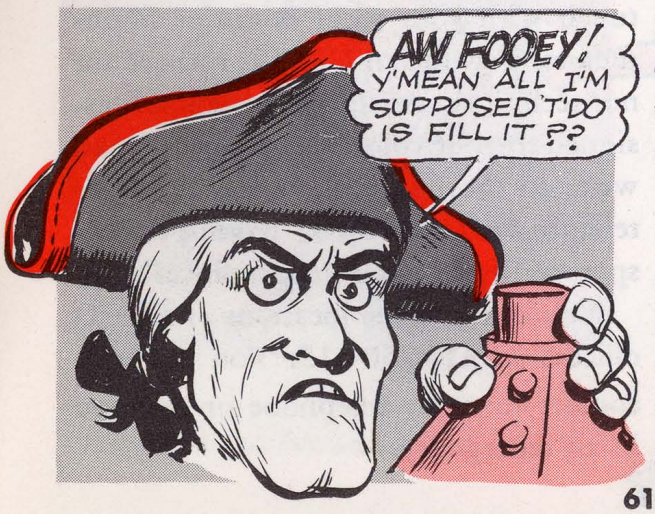
BASIC ISSUE ITEMS LIST

This gives you the accessories, batteries, tools, etc., that are required by the operator to adjust, maintain and operate the equipment.

In the "quantity issued with the equipment" column, you'll find an asterisk (*) listed instead of an amount in many cases. This means the items are not issued with the equipment but may be requisitioned by the unit. The reason this is not a definite issue is because in many units the same tool is already available. Your support manual can be your authority.

MAINTENANCE AND OPERATING SUPPLY LIST

This list gives you the supplies that you need for initial operation of the equipment in different temperature ranges. You'll probably have most of these items on hand. If not, this list has all the info you need to send in a requisition.



LUBRICATION ORDER

This is the same as the official lube order. You use this until an official LO or TM is printed.

MAINTENANCE ALLOCATION CHART

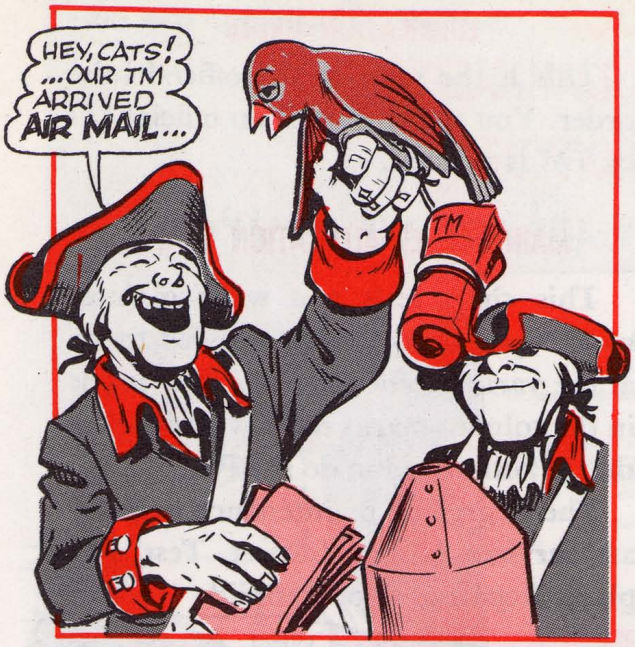
This chart tells you what maintenance operations you're allowed to do at the various echelons. The "X" mark in the column marks the lowest echelon that is authorized to do the PM.

The degree of maintenance is listed as: Service, Adjust, Inspect, Test, Replace, Repair and/or Rebuild.

MAINTENANCE SUPPORT LIST

This is a list of parts which you're likely to need for the rig in its first year of operation. The parts listed are intended for use in organizational, third and fourth echelons of maintenance.

By using the quantity factor in the "15-day organizational maintenance" column, multiplying this by the number of items of equipment, and then dividing by 100, you'll get your authorized allowance. The manual explains this in detail.



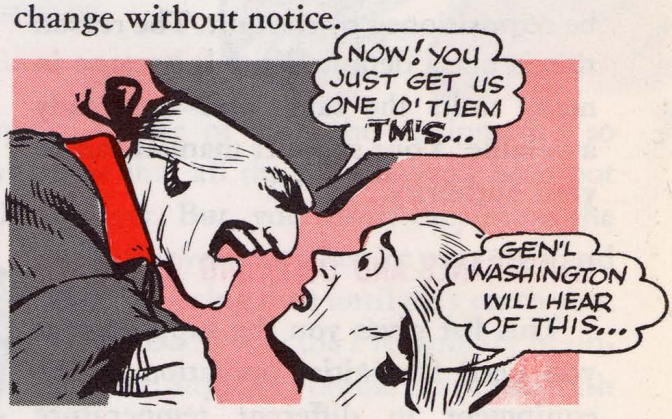
HOW DO YOU GET A MANUAL?

You should have received a manufacturer's pub and a Preliminary Maintenance Support Manual with your equipment. If it was short-stopped . . . mislaid . . . or requisitioned behind your back . . . or you need additional copies, make an informal request for what you need from your Support Unit. There're local ground rules on how you go about getting these pubs from your direct support people.

HOW OFFICIAL IS IT?

This is the word until the DA TM's and LO's are published. When you get your TM's and LO—then the info in your technical manual and lubrication order is what you go by. You use the Preliminary Maintenance Support Manual only until you get the TM or LO.

If there is any difference between the info in the TM and the Maintenance Support Manual—you go by the TM. The information in the Maintenance Support Manual is based upon Engineering reports as the equipment goes through its preproduction tests and, like a woman's mind, is subject to change without notice.



ADDITIONAL HELP

If you're stateside and your unit needs extra assistance in proper maintenance and operating technique, you can get in touch with your local Engineer Maintenance Technician (EMT). If there are no technical assistance personnel assigned to your command, your unit can write to the Engineer Regional Maintenance Office (ERMO) having the responsibility for your geographical area.

You can find the locations of ERMO officers in AR 750-512. You can also contact them by telephone or teletype in an emergency.

PIN POOP

Dear Sgt Dozer,

We kept losing the pins in the upper strut assembly of our TD-18 angle-dozer. These pins are used to keep the blade in place after we adjust the blade at the angle we want it. Sure, we bent the pin at the bottom to hold it in the strut, but somehow or other our rigs always come back from the boondocks minus a pin.

So we attached a chain to the pin and welded it to the strut—and we haven't lost a pin since.

Sgt B. D.

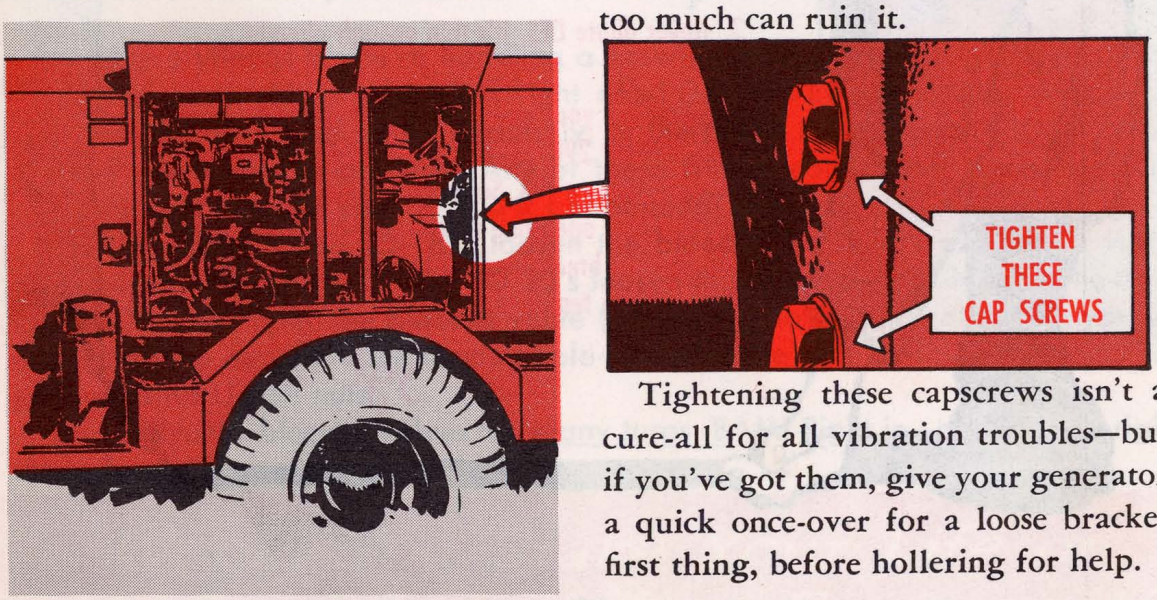
SHAKE THE SHAKES

If your Kurz & Root 45 KW generator has the shakes, could be that it's caused by a loose bearing-bracket.

One thing's for sure. If the four ½-in hex-head capscrews holding the bracket to the frame assembly of the main generator are loose, your rig's going to have the shakes.

The cure for these wild vibrations is much simpler than a cure for the morning after. Give these capscrews a look-see, and if they're loose—tighten them.

A loose bracket will put the rotor out of alinement, and the more you rev the generator up, the wilder she'll vibrate. And, operating a unit that's vibrating too much can ruin it.



Tightening these capscrews isn't a cure-all for all vibration troubles—but if you've got them, give your generator a quick once-over for a loose bracket first thing, before hollering for help.

USE OES STRAIGHT

Dear Sgt Dozer,

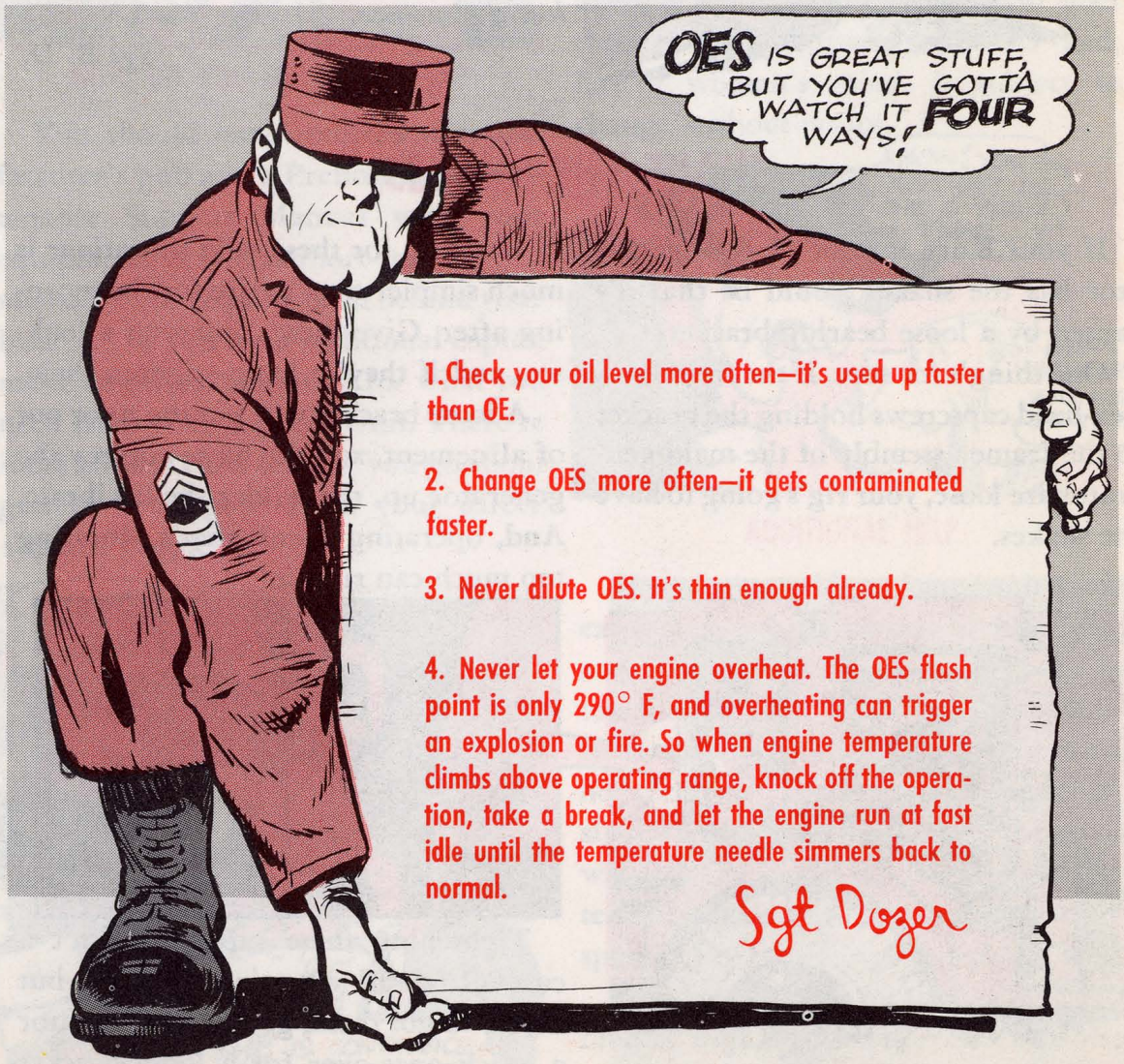
Some LO's on Engineer equipment still say to dilute OE crankcase oil when temperature drops below 0° F, and there is no winterization kit available.

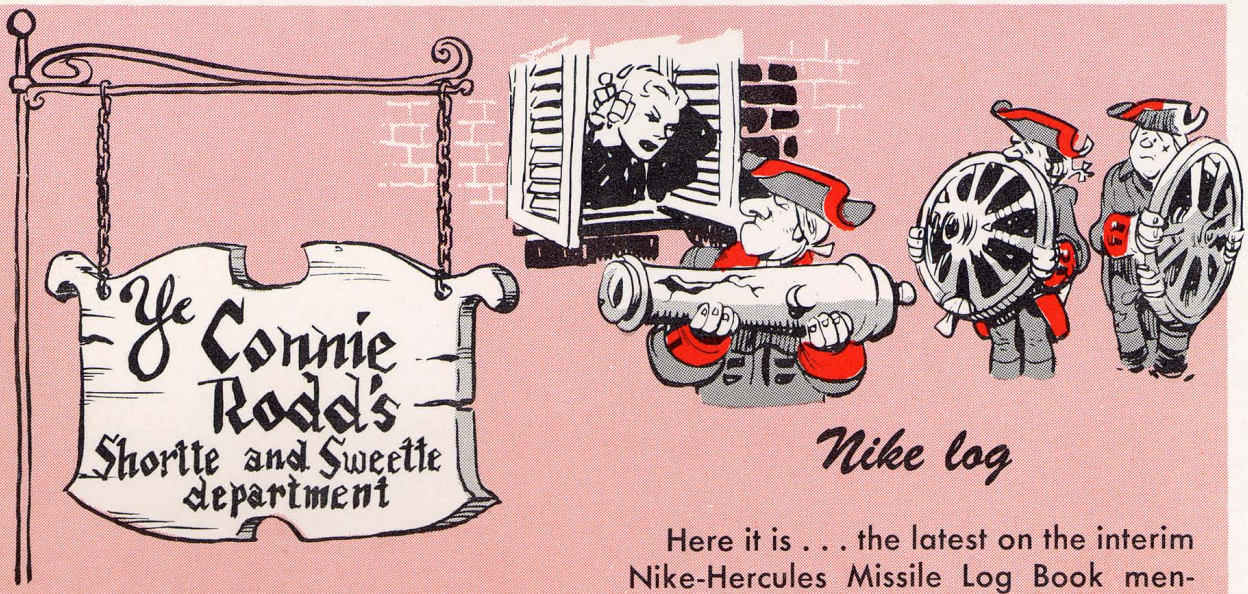
Why can't we use OES as recommended on page 14 of SB 38-5-3? We can get it without any trouble.

SFC J. B. M.

Dear Sergeant J. B. M.,

Go ahead and use the OES for expected temperatures of 0°F and below. The latest LO's are calling for OES in cold weather, and the older ones will do the same when they're revised. SM 10-1-C4-1 (Sep 59) gives you the latest dope on fuel oils, lubricants, oils, and waxes.





Nike log

Here it is . . . the latest on the interim Nike-Hercules Missile Log Book mentioned on page 44 of PS Issue 86. The book is now being put out as DA Form 9-115. So don't ask the people at Redstone Arsenal for replacement pages.

Manual shift

In case your M51 vehicle tank recovery crewmen are still looking around for TM 9-7422—forget about it 'cause it doesn't exist. What you want is TM 9-2320-204-12 (Apr 58). When the M51 manual was being written it was assigned the number, 9-7422. Then the new numbering system came in and the pub got itself a new tag.

Tower of safety

Nike missilemen: Did you get wind of the info in DA Circular 420-18 (18 Nov 59)? It tells about getting hold of safety devices to use on radar towers with ladders 20 feet or higher.

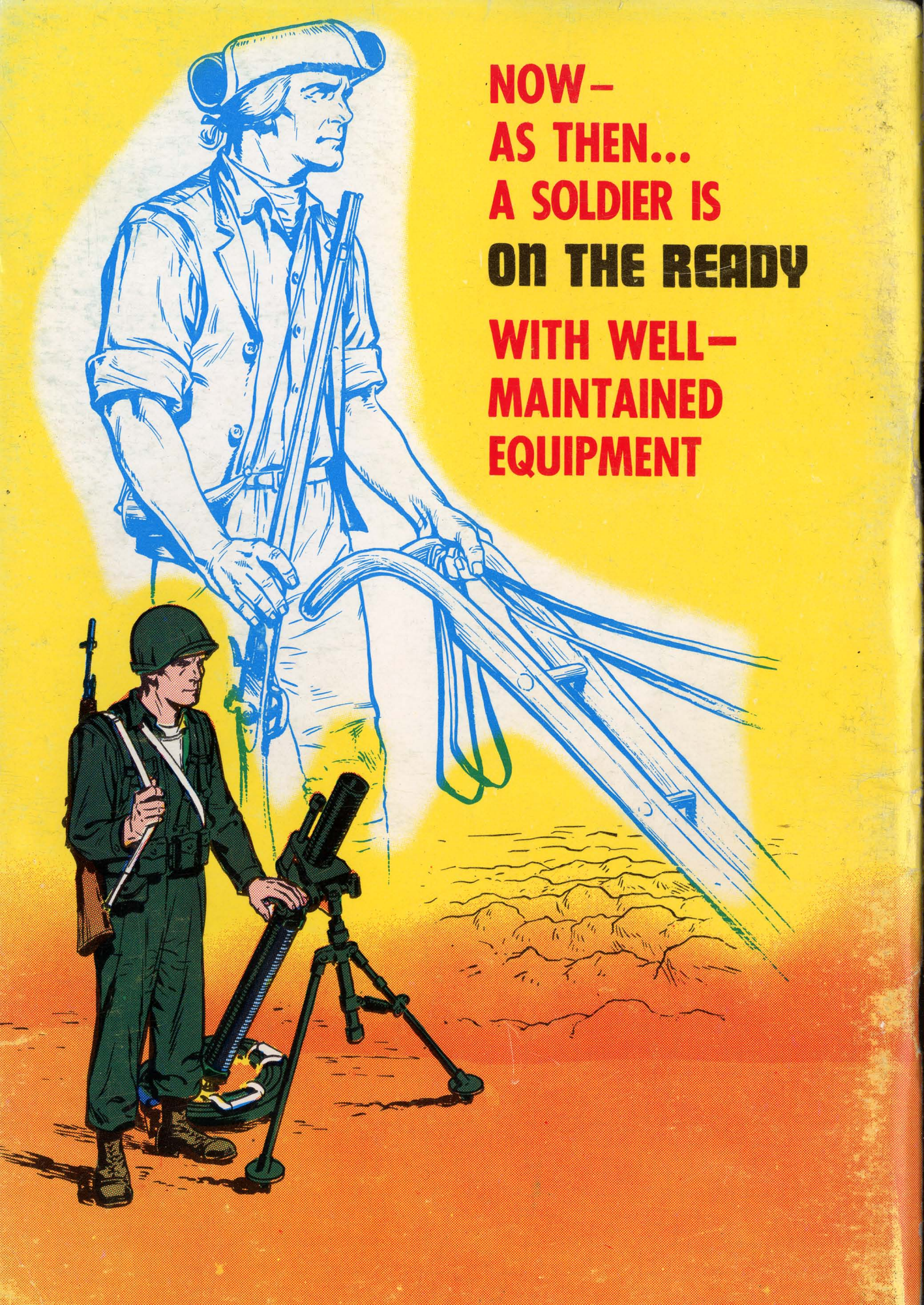
This could save your life

Hold everything! If you're handling a crawler tractor with the hydraulic track adjusters, paste this in your skull right now! Don't EVER remove the grease fitting, the bleeder (relief valve) assembly, or the piston clamp (on the TD-24) without first releasing the pressure. Any of these fittings coming off under pressure can drill right through you . . . and it's happened!

On the D8-9A's and TD-18's, loosen the bleeder (or relief) valve ONE-HALF turn only for bleeding. On the TD-20's loosen the capscrew one-half to one turn. On the TD-24's, open the bleeder valve (cautiously) on the lubricator after you've connected the nozzle to the tapped hole—and before you remove the adjusting piston clamp U-bolt nuts.

If you give the bleeder valves too many turns, BAM! Right in—and maybe right through—the kisser.

Would You Stake Your Life on the Condition of Your Equipment?


NOW–
AS THEN...
A SOLDIER IS
ON THE READY
WITH WELL–
MAINTAINED
EQUIPMENT